THE REPUBLIC OF THE SUDAN

THE TEN YEAR PLAN OF ECONOMIC AND SOCIAL DEVELOPMENT

1961/62 - 1970/71

338.9762
S7 25
1961/71

THE ECONOMIC PLANNING SECRETARIAT
MINISTRY OF FINANCE AND ECONOMICS

Printed by : **Government Printing Press**

629362

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INTRODUCTION

This book presents the Sudan's Ten Year Plan of Economic and Social Development 1961/62 — 1970/71. It is divided into two parts: the first part sets out the characteristics and conditions of the Sudan economy in all its aspects on the threshold of the Ten Year Plan, the objectives of the Plan, the required magnitude of investments and their sources of financing. The second part deals with the distribution of the planned investments over the four broad categories of economic and socio-economic activity, agriculture, industry, communications and social services. The last chapter of this second part sketches the historical background of the planning machinery and outlines its recent reorganization.

The Ten Year Plan has been formulated in a comprehensive way and thus covers both the public and private sectors. The Government has, of course, direct control over the public sector and has accordingly formulated and included in the plan various and numerous projects for its development. As regards the proposed investments of the private sector, they should, at this juncture, be regarded as an indication of the Government's views on the pattern of investments to be undertaken by the private sector and as a guide-line to the latter as to the directions towards which it should channel its endeavours. Government policies and instititutions concerned with the private sector will be oriented accordingly. A specific formulation and preparation of certain projects — especially in the industrial field in the private sector might be undertaken in co-operation between the planning authorities, the other Government Units concerned and representatives of the private sector.

Work on the preparation of the Ten Year Plan commenced towards the end of 1960 when the Ministry of Finance and Economics first formulated the broad objectives underlying the plan. On the basis of these objectives all Ministries and Departments and the statutory corporations were requested to draw up their development projects for the forthcoming plan. In due course also an Economic Planning Secretariat has been set up as an independent part of the Ministry of Finance and Economics to undertake the various tasks involved in the formulation of the Plan. The Secretariat analysed the proposals submitted by the various Governmental Units and statutory corporations and discussed them extensively with the heads of the organizations concerned. The proposals as agreed were subsequently embodied in a uniform set of summaries and schedules, showing the aims of each proposal, the required investment amount and its phasing, its contribution to the national income, its effects on the balance of payments, administrative requirements and a variety of other details.

Alongside with this exercise the Economic Planning Secretariat prepared a macro-economic framework for the plan period. In this task the Secretariat had the benefit of the advice and suggestions of a Panel of Economists drawn from various Government Units, the Bank of Sudan and the University of Khartoum. The members of the Panel contributed papers on various topics and these together with the numerous papers prepared by the Secretariat formed the basis of the discussions of the Panel. The consolidated paper on the macro-economic framework was discussed with a World Bank Mission which was requested for the purpose. Dr. W. H. Singer, the Special Adviser to the Under Secretary for Economic and Social Affairs of the United Nations, was also requested to study and discuss with the Secretariat the macro-economic framework and other aspects of the proposed plan. The comments and suggestions of both were of great benefit in the final formulation of objectives, targets and priorities.

The draft of the Plan embodying both the final macro-economic framework and the agreed projects of the public sector were submitted to the National Technical Planning Committee which considered them in a series of long meetings in July–August, 1962. The recommendation to extend the plan period from seven years—the seven year period had been based on the completion date of the Roseires Dam, a key project of the plan—to ten years emanated from this Committee. The reasons for this recommendation, which was endorsed by the Government, are enumerated in the speech which H.E. The Minister of Finance and Economics broadcast on the occasion of the approval of the Ten Year Plan by the Council of Ministers. The text of this speech follows this introduction. The recommendations of the National Technical Planning Committee were considered and endorsed with some slight modifications by the Ministerial Development Committee. The recommendations of the latter were in turn discussed and endorsed by the Economic Council and finally ratified by the Council of Ministers.

Now that the preparation of the Ten Year Plan of Economic and Social Development has been completed, I would like to avail myself of the opportunity to express my feelings of deep gratitude and thanks to all those whose efforts have gone into the preparation of the Plan. Here I think of the numerous colleagues in the different Government Units who have put in such tremendous work in charting out the development of their Units. I also think of the members of the Ministry of Finance and Economics and the Economic Planning Secretariat whose sustained endeavours have carried the formulation of the Plan to a successful conclusion.

The Ten Year Plan represents the first phase of long-term objectives for development extending over a generation or so. The Plan will be subject to a thorough review at regular intervals, the preparation of the next phases will be taken in hand in the appropriate times. In the course of the first Ten Year Plan, the Sudan's economy must not only expand at an accelerated rate but must at the same time reach the stage of self-sustaining growth.

The fulfilment of the Ten Year Plan calls not only for implementation and speed but also for a nation-wide co-operation, in the many-sided challenges and tasks of development, between the Central Government, Provincial and Local Administration and the people as well as among the peoples themselves. The highest standards of devotion and efficiency from the public services, wide-spread understanding and participation by the people and sacrifices borne equally by all citizens are essential if the efforts and resources of the entire nation are to be mobilized in support of the Plan so that during the years up to the middle of 1971, the tempo of development can be increased, the achievements of the targets assured, and the way opened for more intensive efforts and a quicker pace of growth in subsequent phases.

ABDEL RAHIM MIRGHANI
Under Secretary for Economic
Planning and Development
Ministry of Finance and Economics.

Khartoum
15th March, 1962.

BROADCAST STATEMENT BY THE MINISTER OF FINANCE AND ECONOMICS ON THE OCCASION OF THE PRESENTATION OF THE TEN YEAR PLAN OF ECONOMIC AND SOCIAL DEVELOPMENT 1961/62–1970/71

Fellow Countrymen,

Good evening to you.

I used to speak to you in the name of the Revolutionary Government, in the middle of every year about the Central and Development Budgets, and in June last when I spoke to you about the Central Budget proposals for the current financial year, I said " the Government intends to prepare a plan covering the next seven years; designed to develop the national economy and its resources. I have the pleasure to convey to you that we are almost through with that plan, the details and targets of which continued to be the subject of study and investigation. We intend to put it before you in the next few weeks so that you can study it and participate in its execution." This will be the topic of my speech tonight. Speaking about economic development means illustrating the policy and the development project which have been drawn by the Government for the prosperity of our fellow-citizens in rural and urban areas, in the South and the North, in the East and the West; this also includes what has been planned for the welfare of their sons, grandsons and the coming generations.

Amongst the most important targets that the blessed Revolutionary Government pursued and is still pursuing is the improvement of the standard of living of the citizens through the development of the resources of the Country. For this reason the Revolutionary Government since it assumed power and started to remedy the economic crisis which the Country was undergoing, directed that a comprehensive and well balanced economic plan based on the most up-to-date and the most sound economic principles should be formulated and that the economic planning machinery should also be reorganised. As you all know the Economic Council has been formed and the Ministerial Development Committee has been reconstituted, and a National Technical Planning Committee and a Planning Secretariat have also been set up.

It is a pleasure, indeed an honour to speak to you tonight about the first plan for economic and social development which has been formulated as a result of various studies, and in the light of the most modern concepts of economic planning. In fact it is the first comprehensive and balanced plan, since most of our development effort in the past was not in essence more than collections of capital works of various nature put together without an underlying theme or defined targets joining them together. Our development effort in the past lacked co-ordination and did not take into close consideration the characteristics of our National Economy, its resources, problems and targets and almost ignored the private sectors.

All this was mentioned in my introduction to the 1959/60 Development Budget; and I am glad to say that we did our best to improve the situation to cater for the formulation of the plan in question.

This morning the Council of Ministers has approved the Ten Year P of Economic and Social Development for the years 1961/62—1970/71 ; af it was prepared by the various Ministers and Departments and other Gove ment Units, and scrutinised and discussed at length in all the units of new planning organisation.

As I mentioned earlier in this speech and as it was well known for so time, it was the intention to prepare a seven year plan, I would like theref to state here some of the important reasons why it was decided to extend plan period to ten years:—

(a) Comprehensive economic planning entails careful study and detai appraisal of many different problems and topics, and as such it not possible, despite the fact that more than a year has elaps since the plan started, it was not possible to finish all the necess scrutiny and hence it was difficult to decide upon the major part the proposed projects which were prepared for execution dur the period of seven years.

(b) I have mentioned in my introduction of the 1959 60 developm budget that "Many times in the past development schemes ha been accepted and money provided without ensuring that the phy cal capacity exists for their execution. The delay in the complet of the various programmes and the magnitude of annual revo is evidence enough." The extension of the plan period to ten ye will enable us to train the necessary skills and would facilitate excution of the plan either in the way of building or the import the necessary equipment from abroad.

(c) Comprehensive economic planning and true economic developm mean giving attention to all different aspects of life, but as it essential for the rapid increase of the wealth of the Country and development of its resources, to speed up the execution of ma of the major productive schemes which were carefully prepar and furthermore to start new schemes in the first years of the pl it was difficult to allocate suitable amounts of money for the ot aspects of development from the limited resources of the short per of seven years. This was especially the case as the major proje would absorb about 70% of the total resources estimated for t period; moreover, the projects in question would not yield a revenue before ten years to come. It was therefore evident that we proceed within the seven years resources, the plan would unbalanced and would miss its most important targets. This wou mean retardation of the normal development in all sectors agriculture, communications and the essential social services health and education. The extension of the plan period to years would therefore enable us to present a balanced plan cater for all the aspects of economic development.

(d) The extension of the plan period to ten years would also m dependence on our local resources for development and as a c sequence our chances for external aid would be strengthened.

(e) The extension of the plan period and the resulting increase in volume of investment would enable us to increase the natio income and the per capita income by a greater annual average th what was estimated for the seven years.

Moreover, planning for ten years is a common practice and the length of the plan period does not mean stagnation, as the proposed ten years plan should be viewed as a flexible framework, which can be revised regularly, whenever it is necessary to do so, as economic development is essentially a continuous and flexible process.

I would like now to deal in the rest of my speech with the meaning and problems of economic planning and the size and targets of the ten year plan for economic and social development and what it is intended to achieve in the various aspects of the life of the Sudanese Nation.

Comprehensive economic planning is necessary for quick development and it should combine both Government activities and private enterprise and should as well cover all sectors, like agriculture, industry, health services education and housing, etc.; as shortage of resources compared to needs necessitates organisation and direction, and as the multiplicity of problems compared to abilities necessitates selection and priority.

It is also true that the best use of resources and potentialities would not be achieved without co-ordination and planning. Comprehensive economic planning is basically a scientific study of the circumstances and problems that hinder the progress of society, and assessing the natural and human resources available, and drawing out the right projects which aim at changing those circumstances and dealing with these problems in the light of the available resources. It is therefore a process of defining and knowing the problems and resources of society and the best use and effective mobilization of these resources to achieve a stage of progress accepted by society as a target to be achieved in a certain period of time. This, no doubt, requires close study and investigation in order to ensure that projects are sound both technically and economically and that it is possible to administer and execute them satisfactorily.

In the Sudan comprehensive economic planning faces various problems, as we lack the comprehensive technical knowledge of the Country's resources and potentialities. The necessary Geological and Topographical Survey for exploring mineral resources and underground water, is still in its early stages. Soil Survey and Agricultural Research which are necessary for deciding the types of possible crops, should also be expanded. The possibilities of various industries and the generation of hydro-electric power and necessary statistical information regarding manpower and other information are still lacking, and as such hinder comprehensive economic planning. This should not however mean that we should wait until such data is available, but should mean that economic planning should pay reasonable attention to research and exploration as well as the use of all the known resources and potentialities and their full development.

Economic development is not a collection of projects as much as it is a harmony of policies and principles, aiming at creating economic and social stability and encouraging steady and quick progress both in the public and the private sectors. Such policies and targets are usually defined in the light of the outstanding characteristics of the national economy. The most important characteristics of the Sudan economy are :—

(a) A low national income which results in a low average of per capital income, and consequently a low standard of living and a low level of saving and investment.

(b) Almost total dependence on one crop, cotton.

(c) Traditional Societies in the South, the East and the West which represent in their total a big idle manpower.

(d) Lack of full use of the known natural and human resources.

(e) Relying largely on imports of consumer and capital goods.

(f) General shortage in technical ability, organisation and skills.

It is from these characteristics that the targets of the ten year plan for economic and social development were drawn. The following is a summary of these targets:

(a) The strengthening of the Sudan Economy and the broadening of its structure by:

(1) Increasing the national income at a greater rate than the rate of the population growth with the object of achieving a continuous and substantial increase in the average per capita income. This means the increase of production.

(2) Removing the barriers which prevent population of the backward areas from participating in the modern monetary sector, and laying the necessary foundation for a multilateral basis facilitating quick development and progress.

(3) Increasing, diversifying and improving agricultural production.

(b) The establishment of industries that help to substitute for imports especially those industries that depend on primary materials which are produced locally.

(c) Creation of opportunities for regular and continuous employment and the training of manpower at all levels of skills, both technical and professional.

(d) Improvement of educational and health services and other social services with the object of creating a cultural and social environment capable of coping with the requirements of the new economic life.

(f) Continuation and expansion of investigation and scientific research and experiments in order to assess the Country's resources and potentialities, and the possibility of utilizing these resources for the preparation of the next plan.

The extent of realising these objectives in the period of ten years depends on our local and external resources. The magnitude of investment during the period will be about LS. 512 million of which LS. 285 million will be provided in the Development Budget for major schemes included in the plan and LS. 52 million will be for replacements, betterments and minor projects which are normally financed in Chapter III of the Ordinary Budget. The remaining LS. 175 million represents the estimated investments of the private sector. It is possible that this latter sum might be exceeded. In this connection I would like to reiterate what I said in this speech and on other occasions that economic development is not a task to be shouldered by the Government alone, but it also entails the participation of private enterprise, its encouragement and channelling of its efforts so that public and private fforts may proceed in harmony and co-operation in furthering economic levelopment. I would also like to avail myself of this opportunity to reaffirm the Government belief in the effective role which private enterprise whether local or foreign can play in economic development, especially in the field of industry. It is also the intention of the Government to review the facilities and concessions which are currently granted to approved enterprises to determine their effectiveness in achieving the role to be played in the plan by the private sector.

Preliminary calculations indicate that the total magnitude of investments by the public and private sector will realise by the end of the plan period a 63% increase in the gross domestic product and in view of the increase of population a 23% increase in per capita income. It is hoped that if we proceed at this rate in our future plans we would be able to quadruple the national income and double the income per head in a generation from the start of this plan. I have stated that the extension of the plan period for ten years instead of seven enabled us to formulate a balanced plan which gives every field its due share of care and development. This is evidenced by the following distribution of the planned public investment in the Development Budget :

	L.S. 000	% of Total
(1) Agricultural Sector including Irrigation ..	85,109	29.9
(2) Industries, Mining and Public Utilities ..	41,853	14.6
(3) Education, Health, Housing and Other Social Services and General Administration ..	85,027	29.9
(4) Transport and Communications	63,011	22.1
(5) Miscellaneous including L.S. 8 million Central Reserve Fund	10,000	3.5
	285,000	100

The ten year plan consists of over 260 projects distributed all over the Country which individually and collectively aim at the reform and development of every aspect of Sudanese society. I cannot in this speech comment and analyse every one of these projects. I would therefore as an example concentrate on a few. In the agricultural sector there will be an expansion in the production of American Cotton in the Nuba Mountains and Gedaref areas to meet the requirements of local textile mills and to maintain our export level.

There will also be an expansion in rice production in Bahr El Ghazal and coffee production in Equatoria for purposes of self-sufficiency. A pilot project of an economic size for the growing and the processing of tea will be established. The mechanical crop production schemes in Gedaref will be consolidated and a three course rotation adopted in order to maintain soil fertility and increase yield per feddan. Horticultural development, pest control, crop protection and agricultural research will be taken care of. In the field of forestry the plan would give due emphasis to reservation, plantation, industrialisation and conservation.

Part of the projects of the Land Use and Rural Water Development Department aim at the execution of 240 haffirs, 16 dams and 120 wateryards distributed amongst the nine provinces in strict accordance with their needs for additional water resources. The execution of these projects would result in an appreciable increase in the volume of surface and ground water, especially in Darfur, Kordofan and Kassala Province. It can also be said that as a result of these projects three million feddans of arable land and seventeen million feddans of grazing land can be utilized.

In the field of education the Ministry's plan will achieve both reform and development of the educational system in the Sudan on the most modern educational principles, and at the same time increase the opportunities for education especially in secondary stage. In the field of technical education there will be an effective expansion. The plan of the University of Khartoum consists of strengthening the present faculties, the creation of new ones and the increase of its student population from 1,360 to about 3,500, most of whom will be absorbed in the Scientific faculties. Religious education is given every care and consideration.

The plan of the Ministry of Health in addition to improving the standard of medical services, aims at the building of 30 new hospitals, 71 dispensaries, 6 major midwives training centres, 40 health centres, 11 laboratories over and above the addition of 44 wards varying in capacity from 6 to 48 beds in existing hospitals.

In the field of transport and communication the plan will realise the expansion, improvement and co-ordination of the network of all forms of transport and communication. As an example the plan of Sudan Railways will be sufficient to eliminate the present transport difficulties and meet all new traffic requirements during the ten year period. The projects of the Posts and Telegraphs Department aim amongst other things at telephone development in rural areas, through the automisation of public telephones and increasing their number, the extension of the main automatic exchange, the conversion of telephones in Kassala, Juba, Fasher and Gedaref to automatic ones. In addition, the use of the teleprinter will be extended locally and abroad and the introduction on a limited scale of a subscribers trunk dialling services between Khartoum, Port Sudan, Atbara, Wad Medani, Kosti and El Obeid is envisaged. A reasonable number of new posts and telegraph offices will be established annually in various parts of the Country.

The Civil Aviation projects consist not only of both the construction of the new Khartoum International Airport on the West of Omdurman and its alternate at Port Sudan, but also includes the reconstruction of internal airports at El Obeid, Juba, Geneina, Kassala, Fasher, Atbara and Wad Medani so that they become serviceable all the year round and equipped with night flying facilities.

In the industrial field, the public sector will establish the second Sugar Factory at Kashm El Girba and the Industrial Research Institute and in addition the vegetable and food processing factories at Wau and Karima, milk processing factory at Babanousa, and the onion dehydration plants.

In addition to all that has been enumerated, the plan provides for the strengthening of Province and Local Councils, as living entities with their own independent personality and allocated appreciable funds to enable them to discharge their responsibilities in economic and social development. The plan has also paid attention to the development of backward areas in all parts of the Country especially the South.

Had it not been for the limited time, I would have liked to briefly describe to you the various and important projects of the Ministries and Departments which I did not mention in the preceding paragraphs. I am sure that in the next few days you will be able to acquaint yourselves with these projects.

As I have mentioned earlier, the total magnitude of investment in the ten year plan is estimated to increase the national income by 63% and the per capita income by 23%. These percentages are high but in view of the low level from which we start, the average income per head at the end of the plan period will still be small. If we do not exert efforts to increase it, by the greatest possible additional percentage, the Country will take years and years before it reaches the lowest point of self-sustaining growth. In view of this, the Government has decided to include in the Plan fifteen projects without money provision and will earnestly work in co-operation with private enterprise where necessary for the execution of all those schemes whose studies are completed and their soundness established, as and when the necessary additional resources become available. Some of these proposed schemes are :—

(1) Balance of Ministry of Education Projects.

(2) Khartoum—Port Sudan Road.

(3) Regeneration of Suakin as a Second Port.

(4) Extension of Railway Line from Wau to Juba.

(5) Execution of River Rahad Diversion Project.

(6) Exploitation and Development of Jebel Marra Lands in accordance with the investigation results.

(7) Extension of Railway from Nyala to Geneina.

(8) Fertilizers Factory.

(9) Hessian Factory.

(10) Insecticides Factory.

True economic and social development does not only mean the planning of the public sector and the encouragement of private enterprise, but also, a fundamental change in the outlook of all citizens. Through self-help, savings, the feeling of the need for development and the working and sacrificing for its sake, we can all contribute in the achievement of a better life for all.

May God bless our efforts.

Good night.

CHAPTER I

CHARACTERISTICS AND BASIC DEVELOPMENTS OF THE SUDAN ECONOMY

1. THE COUNTRY

The Sudan consists for the most part of a plain rising gradually in elevation from North to South and Westward and Eastward from the Nile River Valley. Its total area is nearly one million square miles.

In the East this plain is separated from the Red Sea by an escarpment of hills rising some 1,000 metres. In the West—Central region the Nuba Mountains rise out of the plain and farther to the West there is the Jebel Marra range which attains an elevation of over 3,000 metres. The only other important mountain range is the Imatongs on the Uganda border.

The country is entirely situated within the tropical zone. The average annual rainfall ranges from virtually none in the extreme North to 18 cm at Khartoum, the capital and to 100 to 120 cm. in the South of the country. The variations in vegetation correspond with this variation in climate, from deserts in the North to tropical forests in the South. The largest part of the country consists of savannah lands of arid and semi-arid desert.

2. THE PEOPLE

The population at the time of the census (1955 56) numbered some 10.3 millions. It is rapidly increasing at an annual rate of around 2.8 per cent.

The density of the population is very low, viz. 4.1 persons per square kilometer, although its distribution over the country is very uneven. For instance one fifth of the total population lives in Blue Nile Province in the Central Region. Below the line Geneina—El Obeid—Kosti—Sennar—Kassala rainfall is sufficient for grain cultivation and the population is distributed there rather evenly from East to West. This area comprises the provinces of Darfur, Kordofan, Bahr El Ghazal, Upper Nile and Equatoria, with a total population of 5.9 million and also part of Blue Nile and Kassala Provinces. Above this line, however, rains are insufficient and therefore the people are concentrated near the River Nile. This area comprises Northern and Khartoum Provinces with a population of 1.4 million and part of Blue Nile and Kassala Provinces.

3. NATURAL RESOURCES

The resources of the country are primarily agricultural land and water. There is a plentiful supply of good land for cultivation and grazing. The most important agricultural area consists of a wedge-shaped fertile clay plain which is situated in the centre of the country and is widening towards the East. This plain accounts for virtually all the cotton grown in the country. North of this plain, in Kordofan and Darfur Provinces, lies the so-called "Goz" area of sandy soils mixed to some extent with clay and suitable in part for the cultivation of peanuts, sesame and water-melons. The South—Equatoria and part of Bahr El Ghazal—has for the most part rather poor soils consisting of ironstone or laterite, the fertility of which is quickly depleted unless the humus content is constantly replenished. In the extreme South, however, there are areas of deep soils suitable for coffee, cocoa and other tropical crops. The Sudan has about 455,000 square kilometres of productive forest though much of it supports only a thin and scrubby growth. The dominant tree species are various types of acacias, although in the South there are many broad-leafed types including mahogany. Deficiencies of quality and quantity aggravated by the inaccessibility of forest areas made the country almost wholly dependent on imports for sawn-timber. Domestic cutting concentrates largely on firewood, telephone poles and railway—sleepers. Gum Arabic, however, is the most important forest product, growing wild over a zone about 240 kilometres wide stretching across the country from East to West.

The effective use of the agricultural land-potential is limited by the availability of water. It has been mentioned above that north of the line Geneina—El Obeid—Kosti—Sennar—Kassala rainfall is insufficient for agriculture and human settlements are therefore concentrated near the rivers (Main Nile, Blue Nile, White Nile). Expansion of agriculture in that area depends largely on whether more water can be made available for irrigation. It should be pointed out here that the building of Roseires and Khashm El Girba Dams will provide an abundant water—supply of irrigation and will remove in this way one of the most important bottle-necks in the Economic Development of Sudan. South of the line Geneina—Kassala, rains are in general sufficient to sustain agriculture, However, even here rainfall is rather uneven and moreover there are long periods of drought between the rainy seasons. For this reason the Government has been pushing a programme for the development of ponds or "haffirs" with protected rain-catchments and of underground water resources. The construction of "haffirs" is concentrated mainly in the clay-belt while the development of underground water through well-drilling focuses on the sandy areas.

Although exploratory work is still far from complete it has already indicated the presence in possible commercial quantities of high-grade iron-ore and mangnesite in the Red Sea Hills and Southern Kordofan, and of copper, together with uranium in the Hofrat El Nahas districts on the borders of the provinces of Darfur and Bahr El Ghazal. Exploitation is still rather insufficient, apparently, as a consequence of difficulties of transporation and lack of organization rather than of deficiency in deposits. Therefore, the possibility of considerable progress in this field cannot be ruled out. It has been assumed, however, that such major progress in mineral production would take place after the first Ten Year Plan period.

4. General Aspects of the Economy

The economic structure of Sudan is to a large extent typical for a country passing through the earlier stages of economic development. Various aspects of this may be briefly mentioned here.

National income per head of the population, though there are considerable differences in the various regions of the country, is for the country as a whole still very low, viz. some LS. 30 in 1960/61. A considerable increase is one of the most general aims of the Ten Year Plan.

A large part of the national product is still produced in a traditional way, *i.e.* without the help of modern techniques and investment goods. The modern type of production is, however, spreading rapidly, notably in such fields as production for export, in industry, building, transport and public services. It may be said that the modern type of activity provides at present almost half of the Nation's total production and income and the plan foresees a further increase and spread of its relative importance.

Further, a conspicuous aspect of the economic structure is its one-sidedness. Outstanding in this respect are the predominant role of agriculture in total economic activity and the heavy reliance of the economy on the export of one cash crop only (cotton). Thus Agriculture accounted for 57 per cent of total gross domestic product in 1960/61 and it employed some 86 per cent of the total labour force. It should be mentioned however that agriculture's share in gross domestic product had decreased in the period 1955/56—1960/61 from 61 per cent to the 57 per cent. Sudan's total exports, furthermore, rely for some 60 per cent on cotton. Such a reliance on one agricultural primary commodity creates considerable uncertainities for Sudan's export income and, therefore, for the economy as a whole.

The share of industrial activity in total national production is still small. In 1960/61 this share amounted to some two per cent, including public utilities and mineral production. However, industrial production is rapidly increasing and it is expected also that national industries will produce during the plan period quite a range of goods that are now still being imported.

5. STRUCTURE AND RECENT GROWTH OF NATIONAL PRODUCTION AND EXPENDITURE.

The first complete enquiry into national production and expenditure was carried out for 1955/56. Thus it is only from this year onwards that figures on production and expenditure for the country as a whole are available. The total value of production in any given year is summarised in the so called gross domestic product. The following table shows the value of this aggregate, together with the rise of the population, for the period 1955/56—1960/61.

TABLE I

GROWTH OF GROSS DOMESTIC PRODUCT AND OF POPULATION 1955/56—1960/61

	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61
I. GROSS DOMESTIC PRODUCT (LS. MLN.)						
(a) Traditional Part of Economy ..	160.7	164.9	170.5	174.8	181.6	187.2
(b) Modern Part of Economy	123.5	149.7	140.9	146.9	166.2	170.0
(c) Whole Economy ..	284.2	314.6	311.4	321.7	347.8	357.2
II. POPULATION (Thousands)	10.365	10.657	10.958	11.267	11.585	11.928
III. GROSS DOMESTIC PRODUCT PER HEAD (LS.) ..	27.42	29.52	28.42	28.55	30.02	29.95

Gross domestic product might be divided for statistical purposes into a tradititional and a modern part. The latter may be conceived—as mentioned earlier — as the part being produced by means of modern techniques and with the help of modern investment goods. It was also pointed out that the importance of the traditional sector, though still very considerable, is declining. In fact, during the period 1955/56—1960/61 the modern part of the economy has been growing at an annual rate of some 6.5 per cent which is much higher than the 3 per cent growth rate of the traditional part. As a result total gross domestic product has been increasing by 4.7 per cent annually. The fluctuations in the output of the modern part of the economy are mainly due to variations in cotton yield and price. Thus the decrease in 195/758 was caused by very low yield, prices and export of cotton.

The rather rapid increase of gross domestic product has been partly offset by the population growth. It is now estimated that the population has been increasing by 2.8 per cent per annum. Thus gross domestic product per head has increased by some 2 per cent each year and now amounting to LS. 30. Though the rate of growth of the per capita income is satisfying, the value of LS. 30 is still a very low figure and only compares favourably with the per capita incomes in densely populated South-East Asian countries.

The importance of the different sectors of the economy, agriculture, manufacture, transport, etc. was already discussed in broad terms in the preceding section of this chapter. The following table substantiates what has there been remarked : the predominant but declining role of agriculture, the substantial shares of transport and distribution, building and administration and social services in gross domestic product and the very small but rapidly increasing part played by manufacture, public utilities and mining. Group (e), crafts, domestic and miscellaneous services and ownership of buildings, mostly belongs to the traditional part of the economy. Its share in gross domestic product is rather high but is as might be expected declining.

TABLE 2

COMPOSITION OF GROSS DOMESTIC PRODUCT BY ECONOMIC SECTOR IN 1955/56 AND 1960/61

(In percentages of total G.D.P.)

SECTOR	1955/56	1960/61
(a) **Agriculture**, livestock, forestry, fishing	61	57
(b) **Transport** and distribution, banking	14	15
(c) **Mining**, manufacture, public utilities	1	2
(d) **Building and construction**	6	7
(e) **Crafts, domestic and miscellaneous** services, ownership of buildings	12	11
(f) **Administration** and social services	6	8
WHOLE ECONOMY ..	100	100

Of equal interest to the size of gross domestic product is the way it is spent. This is shown in the following table:

TABLE 3

NATIONAL MEANS AND USES 1955/56—1960/61

(In LS. Mln.)

	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61 (1)
Gross Domestic Product (Market Prices) (2)	301.9	333.9	334.5	344.8	384.5	394.3
Less: Total surplus (+) or deficit (—) on current account of balance of payments	+ 13.0	— 6.8	— 14.5	+ 0.9	+ 5.4	— 7.6
TOTAL MEANS	288.9	340.7	349.0	343.9	379.1	401.9
Gross Fixed Investment (3) ..	21.2	24.9	39.5	36.0	38.3	43.1
Plus: Increase (+) or decrease (—) in stocks	— 5.5	+ 19.6	— 10.0	— 4.5	+ 2.5	+ 4.7
CONSUMPTION:						
(a) Private	251.0	272.2	290.5	283.4	306.3	319.6
(b) Public	22.2	24.0	29.0	29.0	32.0	34.5
TOTAL USES ..	288.9	340.7	349.0	343.9	379.1	401.9

(1) Provisional.

(2) Defined as the sum of gross domestic product at factor cost, indirect taxes and charges and sales of government.

(3) Includes African-style building in towns with 5,000 inhabitants or more.

The upper part of this table together shows total means available. This consists of gross domestic product with the resources coming from abroad and after deduction of the resources going abroad.

The lower part of the table shows how total means were spent. The magnitude of the share of gross fixed investment is one of the most important factors for determining the rate of growth of the economy. The higher the share of current resources that goes into investment, the higher will be the growth rate of the economy. It is therefore of great interest to note from the preceding table that the share of gross fixed investment in total means has risen from 7 per cent in 1955/56 to 11 per cent in 1960/61. This is quite an important shift as it implies that one of the necessary preconditions for reaching the take-off stage of the economy has been fulfilled. It is of course essential that the higher level of investment in relation to total resources should be maintained throughout the plan period.

As the share of gross fixed investment has become larger the share of nsumption must by necessity be lower in 1960/61 than it was in 1955/56. his applies in particular to private consumption, the share of which fell om 87 per cent of total means in 1955/56 to 80 per cent in 1960/61. This oes not rule out the possibility that in absolute terms private consumption se considerably. The value of private consumption in 1960/61 was 1.27 nes the 1955/56 figure, an increase that easily outstrips the increase in opulation that took place during that period.

Current consumption by the government claimed 7.7 per cent of the total sources in 1955/56 and this percentage has only gone up slightly during the riod. This share is not particularly high when it is compared with countries at are also in a process of rapid economic growth. When government nsumption is, however compared with the modern part of the economy, it opears that it claims quite a considerable part indeed (17 per cent of g.d.p. market prices in 1960/61).

It might further be observed from the preceding table that the increase n consumption, especially private consumption, is fairly evenly distributed ver the period 1955/56–1960/61 with only a slowing down in 1958/59. This radual movement stands in contrast to the sharp fluctuations in stocks and, a smaller extent, in gross fixed capital formation.

External sources have until recently played a minor role in financing oss fixed investment. This appears from the following table:

TABLE 4

FINANCING OF GROSS INVESTMENT, 1955/56–1960/61

(In £S. Million)

	1955/56	1956/57	1957/58	1958/59	1959/60	1960/61 (1)
ross Fixed Investment (Modern Type)						
entral and Local Government	6.7	8.7	14.1	13.9	14.8	18.0
ovt. Entities with Separate Budget	4.7	3.9	7.2	9.0	8.1	5.6
rivate (2)	7.7	10.2	16.0	10.8	13.1	17.1
otal Gross Fixed Investment	19.1	22.8	37.3	33.7	36.0	40.7
ource of Finance						
avings of Central and Local Government	10.7	10.5	3.9	9.9	22.7	18.6
avings of Government Entities with Separate Budget ..	12.9	– 3.9	8.1	2.4	11.3	– 5.5
rivate Savings (2)	8.5	9.4	10.8	22.3	7.4	20.0
xternal Sources (+ or –)(3)	– 13.0	+ 6.8	+ 14.5	– 0.9	– 5.4	+ 7.6
TOTAL SOURCES	19.1	22.8	37.3	33.7	36.0	40.7.

(1) Provisional.
(2) Modern part of economy.
(3) Corresponds to a deficit (—) or a surplus (+) on current account of balance of payments.

Gross fixed investment in the period as a whole has been nearly completely financed out of local savings. This is especially true for the private sector but in the public sector savings only amount to 89 per cent of the total amount invested in the period 1955/56—1960/61. However the investment level to be expected for the plan period will certainly be higher than the average investment volume in the last six years. It seems therefore likely that during the plan period a greater share will have to come from abroad than has been the case so far.

Though savings have been nearly equal to gross fixed investment for the period as a whole, this equality does not apply to each of the years from 1955/56 to 1960/61. Savings show sharper fluctuations than gross fixed investment and the result is that years with a deficit on current account of the balance of payments (which means that part of gross fixed investment was financed from abroad by a draw down of external reserves) have alternated with years that show a surplus on current account of the balance of payments (which implies that part of the savings have not been used internally).

Fluctuations in total savings are, of course, reflected in the savings in each of the three sectors distinguished in the table but these are different for each of them. A major factor in their explanation is the movement of cotton stocks. When at the end of a certain fiscal year the crop of the past season is still in the hands of the Boards, the cash income and thus savings of the Government entities with separate budgets will be small in that fiscal year. This was notably the case in 1956/57 and again 1960/61. In other years, however, the crop has already passed into the hands of private dealers but might not yet have left the country. In such a case the private sector has expenditure against which there is not yet any cash income and as a consequence their savings will be low. This was especially the case in 1959/60.

Apart from these short-term movements the general picture is characterised by the predominant role of the public sector, in savings as well as in investment. In the past period public investments accounted for about three fifths of the total and this share might even increase within the frame of the ten year plan as the government will exert more developmental efforts than the case in the past. Notwithstanding this, it should be stressed that private savings and investment are still quite important. It is estimated that about 9 per cent of the income of the private sector is set aside for investment and this will continue to be an important factor in the development of the country during the plan period.

According to the previous table, total gross fixed investment in the public sector in the years 1955/56—196/061 amounted to LS. 114.6 million. This is rather higher than the total of the development budgets in these years, the difference being LS. 35.6 million, which is largely due to three reasons: firstly, part of the expenditure amounting to LS. 15 million is under chapter 3 of the ordinary budget, secondly, that part of gross fixed capital formation of Sudan Railways and other government corporations is not accounted for in the development budget (this second factor amounts to LS. 18.1 mln.) and thirdly there is LS. 1.6 mln. capital expenditure in local currency against I.C.A. Programmes.

Some final remarks might be made on the distribution of the gross fixed investment over the different economic sectors. A summary of the situation in this respect for the period as a whole is presented in the following table.

TABLE 5

DISTRIBUTION OF GROSS FIXED INVESTMENT IN 1955/56—1959/60 OVER ECONOMIC SECTOR

(In Percentages)

SECTOR	Private	Public	Total
(a) Agriculture, livestock, forestry, fishing	18	27	23
(b) Transport and distribution, banking	8	30	21
(c) Mining, manufacture, public utilities	13	9	11
(d) Building and construction ..	6	2	4
(e) Crafts, domestic and miscellaneous services, ownership of buildings ..	54	1	23
(f) Administration and social services ..	1	31	18
WHOLE ECONOMY ..	100	100	100

The pattern of investment represented by this table is in general rather favourable in the present stage of development and seems likely to continue during the plan period, though some further shifts may occur.

In the period 1955/56—1959/60 a large share of total investment went into agriculture which is the backbone of the Sudan Economy. The high proportion, furthermore, going into transport, housing administration and social services (like education and health care) is a normal phenomenon—and a necessity—in the present stage of development. The share of investment in the industrial sector (manufacture, public utilities) was nevertheless encouraging and contributed to the progress of diversification of the economy.

Considering the pattern of public investment separately, a large part of it naturally went into transport, administration and social services and in public utilities. However, typical of the Sudan is the large public investment in the agricultural sector. Thus Government has not only invested in the infrastructure of the country but has also given an important direct contribution to the increase in production by establishing the Managil Extension to the Gezira Scheme.

The bulk of private investment has gone into buildings (mainly houses) while smaller—but by no means unimportant—shares have gone into agriculture and industry. It is indeed interesting to note that in the more recent years private investments in industry became quite substantial. This is undoubtedly due to a large extent to the economic policy of the government which has created more favourable opportunities. This trend is a favourable indication for the pattern of private investment during the plan period.

6. FOREIGN TRADE AND BALANCE OF PAYMENTS

Though the Sudan's economy as a whole relies to a smaller extent on exports and imports than is often the case in countries at a comparable stage of development, this does not, however, eliminate the fact that foreign trade has become the most important cornerstone of the modern part of its economy.

Roughly, one third of its production is marketed abroad, and to a considera extent the country relies on imports for its various supplies. On an avera its total consumption consisted of approximately one fifth of imported co sumer goods, its imports of raw materials were equal to some 8 per cent the total value of its gross domestic product and the value of its import capital goods and building materials accounted for almost half of investments. Another aspect, moreover, of the great importance of fore trade for the modern part of the Sudan's economy is that the Cent Government's current revenue directly depends for almost 50 per cent exports and imports.

In such circumstances, it was no doubt gratifying that the Sud managed in the past to export sufficiently in order to cover its import requi ments. That, at least, holds true if one looks at the matter over a wide sp of time. As a result the foreign debt has remained insignificant.

In the past five years greatly increased investment in development h inevitably led to a considerable rise of imports. This was natur accompanied by a favourable shift in the composition of total imports. 1955 consumer goods accounted for 63 per cent of the total imports but th share decreased to 53 per cent in 1960 whereas the relative importan capital goods and raw materials increased.

Despite this appreciable rise of imports in more recent years, expo almost kept pace with it (except for the first year of the Ten Year Pla However, as a large part of the foreign exchange requirements of the high investment volume was covered by foreign capital, the Sudan entered t Ten Year Plan period in July, 1961 with, on the one hand, an enlarged though still modest-foreign debt amounting to LS. 26 million or some 40 p cent of the 1960 export level and on the other hand the foreign exchan reserves amounted to LS. 60.8 million: these reserves will provide a ve necessary "cushion" to cope with any short term fluctuations in the forei exchange income and in the economy at large.

TABLE 6

SUDAN FOREIGN TRADE IN LS. (MILLION)

	EXPORTS							IMPORTS		
YEAR	Cotton Lint and Seed Oil	Gum Arabic	Groundnuts	Sesame	Cattle and Hides	Others and Re-Exports	Total Exports	Total Imports	Consumer Goods	Raw Materials	Capital Goods and Building Materials
19							5.4	5.6			
50	24.8	2.7	0.2		1.8	3.6	33.1	27.3	18.8	4.3	4.
51	49.3	3.5	0.8	0.4	2.0	6.8	62.8	42.0	28.0	8.2	5.
52	31.5	2.5	1.1	1.3	1.3	5.1	42.8	61.7	39.1	12.5	16.
53	30.0	3.0	2.0	1.5	1.6	6.3	44.4	50.8	29.5	8.7	12.
54	24.9	3.8	1.1	1.6	2.4	6.6	40.4	48.5	30.8	7.6	10.
55	33.8	4.7	2.4	1.8	1.9	5.9	50.5	48.8	30.4	8.4	10.
56	46.9	5.4	3.8	2.1	2.6	6.1	66.9	45.2	28.4	8.8	8.
57	28.8	4.7	4.7	3.0	3.1	7.1	51.4	67.6	40.1	12.7	14.
58	23.8	5.2	3.4	2.2	2.4	6.4	43.4	59.5	27.5	12.5	19.
59	45.0	5.1	3.6	2.8	2.2	8.1	66.8	57.0	33.2	11.2	12.
60	36.3	7.0	4.4	4.6	2.5	8.9	63.7	63.0	33.4	12.4	17.
61	34.7	6.1	5.4	4.2	2.5	9.3	62.2	81.5	40.4	14.1	27.

Sharp fluctuations of short duration are characteristic of Sudan's exports nd this phenomenon indirectly entails corresponding fluctuations in imports ith a certain time-lag in between. One is confronted, therefore, with the lditional difficulty, that in years when the country's income from exports declining, imports will often still be rising as a result of the high export vel in the previous year.

All this instability is, of course, fundamentally due to the fact that udan's exports consist almost entirely of primary commodities (see receding table) and moreover it is strongly dominated by one agricultural ommodity, *viz.* extra long staple cotton, with considerable fluctuations in s supply and demand. This structure of exports on the one hand and the ct that imports consist for a large part of industrial products on the other d to a certain downward movement in the trend of the Sudan's terms of ade since 1954 (vide Table VII). In this respect, too, the Sudan has to deal ith the same difficulties as many other primary producing countries.

TABLE 7

TERMS OF TRADE OF SUDAN

(1953 = 100)

1954	126
1955	115
1956	125
1957	112
1958	107
1959	103
1960	111
1961 1st. half year	109

In the long run, it will be possible to reduce the fluctuations and he deterioration of the terms of trade by a broadening of the basis of our xports and by a rapid increase of local industrial production. Later it will e seen that the plan provides for considerable progress in both respects. It s clear, however, that these are structural problems which naturally cannot e completely solved in a period of ten years only.

The following table gives a picture of the actual payments to and receipts rom abroad from 1956 till the beginning of the plan period :

TABLE 8

SUDAN BALANCE OF PAYMENTS (LS. MILLION)

	1956	1957	1958	1959	1960	1961 1st h.y.
Export ..	71.5	51.7	44.9	68.2	64.0	31.0
Import ..	48.2	69.7	54.0	49.2	61.0	36.1
BALANCE OF TRADE ..	23.0	18.0	9.1	19.0	2.1	5.1
Net Invisibles ..	6.4	3.6	3.9	5.3	3.4)	2.1
Net Investment Income ..	0.1		0.2	0.3	0.3)	
Balance in Total Current Acct	17.3	21.6	12.8	14.0	1.0	7.2
*Official Loans (net) ..			1.7	0.6	2.2	0.4
Official Grants and Aswan Dam Compensation ..			0.1	3.0	0.2	0.2
Net Movements in Working Balances ..	3.2	0.2	1.9	3.6		0.8
Other (net) ..	1.2	15.6	4.3	1.4	0.3	2.3
TOTAL CAPITAL ACCOUNT ..	4.4	15.8	8.0	11.8	13.1	0.7
Errors and Ommissions ..	0.1	0.2	0.4	0.1	0.1	0.3
Increase or Decrease in Foreign Reserves ..	13.0	6.0	4.4	25.7	12.2	2.8

Including Drawings on I.M.F.

Naturally, the balance of payments reflects in its trade balance the movements of exports and imports commented upon above and, similarly, the picture of this trade balance for the period as a whole cannot be considered unsatisfactory. In view of the increased import requirements due to the heavier investments in the plan period it must be expected, however, that the trade balance will tend to show a deficit over that period as a whole though surpluses may still occur in years which are favourable for exports.

Furthermore the foregoing table shows that the Sudan has to deal with a structural deficit in the "invisibles" (services obtained from or rendered to abroad). This, again, is a common phenomenon in countries at our stage of development. In the case of the Sudan, however, it is not as is often the case elsewhere, due in part to a negative balance under the heading "investment income" which shows interest and profit transfers to or from abroad. Private transfers of this type remained, on an average, below LS. 1.0 million per annum whereas Government interest receipts surpassed considerably and continuously its interest payments, sometimes by as much as LS. 1.7 million as happened in 1960. The main items which caused the deficits in the other invisibles were costs of transportation, travel and Government expenditures of various types. It must be reckoned with that these and other types of costs will tend to increase further in the plan period—though receipts in these categories will rise too—and that the deficit position will remain for some time and may even become somewhat larger.

The lower part of the preceding table shows the increased inflow of official foreign capital in recent years. It will be noticed that a considerable part of this was not obtained on a loan basis, with the result that the official (long and medium term) debt amounted to only LS. 26 million at the beginning of the plan period. The net inflow of private long term capital, included under the item "others", was very small in the whole period 1956 60. The inflow averaged LS. 0.7 million and the repatriation LS. 0.5 million per annum. In 1961, however, the net inflow was considerably larger and in general prospects for the plan period are more favourable. The movements of both current and capital accounts of the balance of payments resulted in the period covered by the table in an increase of foreign reserves. These reached a level of LS. 60 million at the beginning of the plan period and will—as mentioned earlier—provide a sufficient but very necessary cushion to cope with the wide short term fluctuations in the foreign exchange income.

PUBLIC FINANCE AND MONETARY DEVELOPMENTS :

The public sector plays an important role in the economic development of the country, the more so as production for export emanates to some considerable extent from public schemes.

This is clearly illustrated by the dominant importance of the public share in the total gross investments and in total savings. Figures and other particulars regarding the relative importance of public savings and investments and regarding their composition have been given in section (5) of this chapter.

In the financial year 1957 58 public investment was raised to a new and much higher level. At the same time, however, Government's recurrent expenditure shot up sharply too, whereas revenues dropped sharply as a result of the near failure of the cotton crop and later also as a result of the severe temporary import restrictions which had to be applied. It is apparent therefore that in the first years of this higher investment level, public savings were far from adequate to cover such investment in contrast to the situation that generally prevailed previously. The gap between savings and investments was financed first by draw-down of cash reserves, previously accumulated which resulted in a decrease of foreign reserves and, when imports had to be restricted, in inflationary pressures.

In 1959, however, equilibrium was restored. Government revenue increased again due to higher exports and imports but also due to higher customs duties in a wide range of imports and some other similar measures. Furthermore, the growth of recurrent expenditure had been checked and official foreign loans and grants had been obtained. Due to this, it was even possible to replenish the cash reserves. With the combination of replenished cash reserves (in July 1961 they amounted to LS. 38 million) and of foreign exchange reserves amounting to LS. 60 million at the beginning of the plan period, the public finances entered the plan period with a firm foundation which should enable the government to cope with the short term fluctuations which might occur during that period.

TABLE 9

ACTUAL EXPENDITURE AND REVENUE IN CENTRAL GOVERNMENT BUDGET IN LS. (MILLION)

	Revenue	Expenditure	Surplus
1951/52	46.3	21.5	24.8
1952/53	30.3	25.7	4.6
1953/54	35.4	27.6	7.8
1954/55	38.1	30.6	7.5
1955/56	42.3	32.1	10.2
1956/57	45.9	32.7	13.2
1957/58	47.4	41.3	6.1
1958/59	42.0	41.4	0.6
1959/60	67.5	44.9	22.6
1960/61	64.1	48.2	15.9

Indeed, one should be prepared for such fluctuations in public savings. The main element of those savings are the surpluses in the Central Budget. Table 9 shows their movements from year to year. Revenue of the Central Government depends, both directly and indirectly, very much on foreign trade. It is logical therefore that revenue will reflect to a considerable extent the trend and the short term fluctuations in foreign trade described in the previous section of this chapter.

TABLE 10

CENTRAL BUDGET REVENUE ACCORDING TO VARIOUS SOURCES (ACTUAL)

	1958/59	1959/60	1960/61	
	LS. Mln.	LS. Mln.	LS. Mln.	%
(1) Import Duties	10.30	22.73	21.75	33.9
(2) Export Duties and Royalties ..	5.02	5.86	4.84	7.6
(3) Participation in Agricultural Undertakings	1.84	7.88	8.37	13.1
(4) Consumption and Excise Duties and Sugar Monopoly	10.26	10.68	11.82	18.5
(5) Business Profits Tax	1.53	1.55	1.38	2.1
(6) Fees, Charges, Re-imbursements, Inter-departmental Services and Others	13.03	18.77	15.91	24.8

The reliance of the Central Budget revenue on foreign trade is clearly demonstrated by Table 10 which shows the revenue structure according to its main components. It will also be observed that a large part of the total revenue consists of indirect taxation. Categories 1 and 4 together account for 52.9 per cent of total revenue in 1960/61. This is of course a normal phenomenon in the present stage of the economic development of the Sudan. It is, like the even heavier reliance of revenue on foreign trade, a typically structural phenomenon. It may be stated, however, that the fact that luxury and semi-luxury imports are relatively heavily taxed almost eliminates the regressive aspects of a great part of our indirect taxation.

Vis-a-vis those developments in revenue, the expenditure in the Central Budget rose from a level of LS. 20 million at the beginning of the fifties to a level of some LS. 50 million at present. The greater part of this rise took place in the period 1955/56—1960/61, starting with an upward jump from LS. 32.7 million in 1956/57 to LS. 41.3 million in 1957/58.

The rise of recurrent expenditure in the post-independence period is partly linked with the take-over of various new tasks by Sudan Government. From 1955/56 to 1957/58 the level of this expenditure rose from LS. 32 million to LS. 42 million. Thereafter it increased to LS. 48 million in 1960/61 or, on an average, by 5¼ per cent cumulatively. The largest growth took place in the social service sector—mainly health and education. There were also substantial increases in the economic sector (mainly for agriculture and works) and in expenditure on general administration and security. Naturally, the rather rapid growth of Central Budget expenditure in the sectors of economic and social ministries was partly—but certainly not wholly—due to the increasingly important role which the Government plays in the economic and socio-economic development of the country. The recurrent expenditure of completed projects in those sectors was appreciable.

In addition to the surpluses in the Central Budget, which can largely but not entirely be considered as savings in the pure economic sense of the word, the surpluses of income over current expenditure of Government entities with separate budgets constituted in the past—and will continue to do so in the plan period—an important element in the total of public savings. Figures regarding their magnitude have been given in section 5 of this chapter and estimates for their future savings can be found in Section 3 of the next chapter.

TABLE II

Money Circulation * in Sudan

(LS. MILLION)

END OF PERIOD	Total	Of which Currency
1950 **	25.48	20.66
1951 **	34.70	24.86
1952 **	32.48	24.11
1953 **	30.93	22.65
1954 **	30.52	22.13
1955 **	29.03	20.66
1956 **	30.20	20.68
1957	28.64	18.04
1958	32.31	19.25
1959	32.83	19.44
1960	34.98	20.19
1960 (June)	36.94	21.02

* As conceived by I.M.F. in I.F.S. ; quasi money is excluded.
** Partly estimated and may be in error.

Turning now to general monetary developments, it may be stated th over the past decade their long-run trend has been comparatively stead though in the period 1956/1961 the growth trend of the money circulati (Table XI) was rising somewhat more steeply than the trend of the tot gross domestic product of the modern part of the economy. It is one of t objectives of the plan that on the whole a relatively stable monetary clima should be maintained. It must be observed, however, that one natural finds short term instabilities so characteristic for Sudan's economy, al reflected in monetary developments. It has been described earlier, f instance, how various factors contributed to money increases and, becau import restriction became inevitable, to inflationary pressures in 195 Thereafter and until 1961 Government finance exerted a contractiona influence on money circulation. This compensated to a large extent t impact of the considerable export surplus in 1959 and the rise in ba advances.

Bank advances appreciably increased throughout the past decade. F the period 1956 61 this increase is shown in the opposite table (Table XII It will be noticed that the rise of short term advances for financing impo and export constitute the larger part of the Total increase in that period.

TABLE 12

COMMERCIAL BANKS (*) ADVANCES TO PRIVATE SECTOR

(*LS. Million*)

	1956	1957	1958	1959	1960	1961 June
Short Term						
Import Financing	3.7	5.0	2.7	3.9	5.9	6.2
Export Financing	11.0	11.6	10.3	9.7	15.8	14.5
Others	3.1	3.9	8.1	2.6	5.6	5.8
Medium and Long Term ..	4.2	5.5	5.4	7.8	7.5	7.4
TOTAL	22.0	26.0	26.5	24.0	34.8	33.9

(*) Excluding Agricultural Bank but including National Bank of Egypt unti December, 1959.

Source :—Bank of Sudan.

A number of new Sudanese banking institutions were established i recent years, *viz.*, The Bank of Sudan (Central Bank), the Agricultural Bank the Commercial Bank and the Industrial Bank. In addition to these variou foreign banks are operating in the Sudan and on the whole it may be said that from an institutional point of view the banking mechanism seems adequate to cope with increased economic activity in the plan period. Various steps should however, be taken to develop a capital market and to promote private saving and their channelling into productive types of investment. The Bank of Sudan is actively engaged in investigations for the establishment of a capital market.

Statistical information regarding the price-level is still rather incomplete. There are often considerable differences in prices of some goods in various parts of the country and also strong seasonal fluctuations. The index of cost of living refers only to the capital city of the country. The movement of the index of wholesale prices is greatly different from that of the cost of living (Table XIII) on account of the large weight of cotton in the former. The rise of the cost of living index is partly due to increased indirect taxes.

TABLE 13

Price Indices

	Index Cost of Living (1953 = 100)	Index Wholesale Prices (1953 = 100)
1956	106	111
1957	107	118
1958	116	101
1959	115	92
1960	116	96
1961	124	102 (1st. h.y.)

8. THE MANPOWER SITUATION

Information regarding the present manpower situation is scarce and fragmentary. It has been possible, however, to assemble some useful benchmark statistical data from which various aspects of the manpower problem can be partially and roughly assessed. The figures are based on the statistics collected during the 1955/56 census as revised in 1960. The estimates are conservative and are based on assumed constant fertility and mortality rates. It is not unlikely that in the coming period the further improvement of social services will have a significant impact on mortality rate.

It is estimated that the total population of Sudan has grown to some 12 million people at the beginning of the plan period.

TABLE 14

TOTAL AND WORKING POPULATION IN SUDAN

(*In 000 Persons*)

Province	1956 Census					1961	
	Total Population			Economic Active (***)		Total Population	Economic Active
	Urban (*)	Rural (**)	Total		in % of Total Population		
Bahr El Ghazal ..	17	974	991	561	55.8	1,157	646
Blue Nile	144	1,926	2,070	820	39.2	2,398	936
Darfur	54	1,275	1,329	762	56.9	1,539	875
Equatoria	22	881	903	529	57.2	1,050	607
Kassala	149	792	941	380	40.9	1,097	446
Khartoum ..	255	250	505	184	36.4	584	212
Northern ..	88	785	873	250	28.6	1,014	290
Upper Nile ..	10	879	889	433	48.1	1,038	490
Kordofan	115	1,647	1,762	931	52.6	2,052	1,070
SUDAN ..	854	9,409	10,263	4,850	—	11,929	5,572

(*) Large and small towns.

(**) Including in total 1.4 million nomadic

(***) Based on revised census.

Males are slightly in excess of females (resp. 6,029 and 5,899 thousand)

The labour force in 1961 is estimated at some 5.6 million of which 4.0 million were males and some 1.6 million females. Of this labour force, furthermore, some 3.5 million would fall in the age group of 20-64 years, 0.8 million in the group 15-19 years, 1 million under 15 years and 0.1 million over 65 years. The labour force is expected to grow between 1961 and 1966 on a conservative estimate at an average rate of 168,000 per annum, of which 122,000 will be males.

As the preceding table shows, the geographical distribution of the labour force is rather unequal and there are also notable differences in the share of the economically active population in total population. In an absolute sense however, the need for additional employment will be most intense in Blue Nile and Kordofan Province.

A rough distribution of the labour force at the time of the census by industrial activity based on the revised occupational census figures is as follows :—

TABLE 15

OCCUPATIONAL DISTRIBUTION OF THE LABOUR FORCE

(*In 000 Persons*)

	Males	Females	Total	In % of Labour Force
Pastoral activities:				
(a) Farming, hunting, fishing, forestry	2,207	1,048	3,255	—
(b) Animal husbandry	837	63	900	-
(a) + (b)	3,044	1,111	4,155	85.76
Manufacturing	63	178	241*	4.97
Construction (**)	31	-	31	0.64
Commerce	92	8	100	2.06
Transport	31	—	31	0.64
Services	177	46	223	4.61
Unclassified	54	10	64	1.32

(*) About 145,000 are working in subsidiary occupations.

(**) Does not include road and railroad constitutional workers.

It is significant that 86 per cent of the economically active population was engaged in pastoral activities of one kind or another. Employment in most of the sectors shown above will have increased in the interval. Urban growth and industrial development may since the census have caused some relatively larger growth in such sectors as manufacturing, construction and commerce but the numerical additions in such sectors will have made only marginal changes in the percentages presented in the table. The table may provide, therefore, some rough idea of the present and potential composition of the employment market.

AGRICULTURAL DEVELOPMENT

Although the arable land in Sudan is estimated at about 100 million acres, only slightly over 7 million acres are cropped. The most developed area agriculturally is the fertile, central clay plains growing practically all the cotton. To the west of this, is the 'quoz' area in Kordofan and Darfur Provinces where gum arabic and oilseed crops are grown; to the east, are the flooded silt plains of Gash and Tokar Deltas, irrigated by seasonal streams, growing principally cotton and dura (sorghum). The southwest region, mainly the Equatoria Province, in the tropical rainfall belt, has laterite soil suitable for various tropical crops. In the arid and semi-arid areas in the north, cultivation is confined to the Nile Basin with a uniform cropping pattern consisting of a mixture of food and cash crops (fruits, dates, wheat, pulses, vegetables, etc.). Although no survey of the land potential has been made, it has been roughly estimated that the potentially productive land would be over 100 million acres.

What stands in the way of the effective use of this potential resource is largely the inadequacy of stored water. In fact, water has been, as pointed out already, one of the principal limiting factors to the growth of the economy. The irrigated area is only about 2.4 million acres of which about one million acres are in the Gezira under gravity irrigation from the Sennar reservoir on the Blue Nile and almost an equivalent area under pump schemes. The Managil Extension adjoining the Gezira, launched in 1955, the first two phases of which had been completed before 1st July, 1961 commands at present an area of 588,000 acres. On full completion, the project is expected to bring under irrigation over 800,000 acres. Considering the sparse and erratic rainfall over most parts of the country, further expansion of commercial agriculture obviously depends on the development of irrigation. Of considerable importance is the new Nile-Water Agreement of November, 1959 between the United Arab Republic and the Sudan which authorizes the construction of a dam at Roseires for additional storage of flood flow.

In the irrigated areas, cotton is grown as the principal cash crop in rotation with dura and lubia (legume) as food and fodder crops. The greater part of this cotton area is under gravity irrigation in the Gezira. The area under the pump schemes which are mostly privately owned and are of a limited size has shown an appreciable increase in recent years; that under flood irrigation in Gash and Tokar has inevitably not been stable. The production of cotton has increased from 92,103 tons in 1955/56 to 107,822 tons in 1960 61. The long staple or 'Sakel' type cotton accounts for about 90 per cent of the total production, the balance being the American type grown principally in the rain-land areas round Nuba mountains in Kordofan and in Equatoria. Cotton dominates the modern part of the economy as it provides some 70 per cent of total export and directly and indirectly some 40 per cent of Government revenue. Although the country accounts for only about 4 per cent of the world supply of cotton entering in international trade, its share in the production of long staple cotton is as much as 30 per cent. This has rendered the economy particularly vulnerable to fluctuations in cotton prices in world markets.

Cultivation in the rainlands south of the line Geneina—El Obeid—Sennar—Kassala is mostly of the subsistence type. Recently mechanical cultivation has spread rapidly and an area of over one million acres in Gedaref district, south-west of Kassala has been put under mechanical cultivation for growing dura. Government has allotted 1,000 feddans in plots at nominal rents to agricultural entrepreneurs who employ tractors and drills for ploughing and sowing respectively, the weeding and harvesting being done by tenants. Mechanical cultivation has now been further extended to the Dali and Mazmum area of the Blue Nile Province. The production of dura has increased considerably with the introduction of mechanical cultivation. Whereas in 1955/56 mechanical production of dura amounted to about 126 thousand tons in 1960/61 it had gone up to about 453 thousand tons. Not only has this assured an abundant supply of dura to the domestic market but has provided a surplus for export.

The other important rainland crops are oilseeds and gum arabic. Among oilseeds, groundnuts production has been making rapid progress; exports have increased from about 50,000 tons in 1955 to about 67,000 tons in 1960. The other chief oilseed crop is sesame whose exports have increased from 40,000 tons in 1956 to about 76,000 tons in 1960. Castor is being cultivated on a small scale but there are possibilities of its expansion. Gum Arabic has been virtually a monopoly of Sudan which supplies about 80 to 95 per cent of world trade in this commodity. To ensure adequate supplies, attention is being paid to regeneration of gum gardens and to improvement of cultural practices.

The need for diversification of the agricultural economy has been increasingly felt. Stress is being laid therefore on introducing a greater range of crops in the rotation system in the irrigated areas as well as in the rainlands. It has been found that rice could be grown successfully in the 'toiches' or the flooded slopes of Bahr El Ghazal Province and the scope for extending rice cultivation is promising. Similarly there are good possibilities of growing sugar-cane and a beginning has been made in sugar-cane cultivation at Geneid. In the tropical rain fall belt of the extreme south which is suitable for growing plantation crops, experimental cultivation of such crops as coffee, tobacco, etc. is being undertaken. Encouraging the production of a wider range of crops would not only diversify the cropping pattern and thus reduce the heavy dependence on cotton, but would also lead to the substitution of such imported commodities as rice, sugar, coffee, etc. resulting in substantial saving in foreign exchange.

The extension of cultivation to new areas has created difficult problems of proper land use. A Land Use and Rural Water Development Board has recently been set up for ensuring proper use of land according to its capability for arable farming, pasture and forestry and for protecting the soil against erosion through overgrazing and continuous cultivation. There is also the problem of the desert-creep particularly in Norther Kordofan and Darfur Provinces. A scheme for improved land use in the central Savannah belt of Kordofan has recently been sponsored by the United Nations Special Fund.

With increasing private initiative in agricultural development, as represented by the pump scheme and mechanical cultivation in the rainlands, the need for adequate supply of agricultural credit has become increasingly felt. The main sources of agricultural credit have been the private financiers, commercial banks, the co-operatives and the Government. While the private financiers drive a hard bargain through the system of 'sheil" or pledge of produce before harvest and have been hardly interested in the small farmer, the commercial banks have confined themselves by and large, to granting loans to well-known financial houses who in turn lend to pump scheme owners and individual cultivators. The co-operatives have not reached a stage of development to act as primary sources of credit, as they are themselves in need of capital. The Government operated a loan scheme for several years, making credit available mainly to co-operative societies, small pump schemes owners and individual cultivators. Though this scheme helped partly to fill a vacuum in the supply of agricultural finance, in its actual operation however, it was found that control was lacking over utilization of the funds granted and their recovery was lacking. The need for a separate organisation manned with full-time trained staff was therefore felt and an Agricultural Bank started operations in 1959 with an authorised capital of LS. 5 million provided by the Government. The Bank is authorized to make short-term, medium-term and long-term loans. The Bank does not supplant but supplements the credit facilities made available by the financiers. In 1959, when the commercial banks decided not to carry on with the financing of cotton without a Government guarantee of any possible loss, the Bank stepped in and undertook successfully the financing of the cotton crop, with the temporary help during the first season of commercial companies and previous financiers as agents. The Bank has also extended credit facilities to the dura producers in the mechanised crop production area at Gedaref and Fung. Besides cotton and dura, the Bank has also extended assistance to cultivators of wheat and legumes in the Northern Province, vegetables and fruits in Khartoum Province, coffee and rice in the South and oil-seeds in the mechanised crop production areas in Kassala, Blue Nile Province and Northern Province. To expand credit facilities, the Bank has eight branches and three sub-branches at eleven centres. The Bank has established a permanant supervisory and advisory body with qualified staff and placed them out in the field in the production areas to supervise and give technical assistance to pump scheme owners and farmers and to ensure the proper utilisation of the loans.

Except in the case of cotton which is marketed either by the Gezira Board or by pump scheme owners direct or through Agricultural Bank, too many middlemen dominate the marketing of some of the other crops with the result that the farmer may sometimes get a disproportionately small part of the consumer's price. Partly this has been due to the enormous distances and the lack of transport and communication facilities. The establishment of organised auction markets for the principal commodities has improved marketing practices. The Government has been trying to encourage co-operative societies to market the production of the farmers particularly in areas of peasant farming like Shendi and Fung. With the establishment of the Agricultural Bank, advice and assistance to producers in the marketing of their produce are being rendered by the Bank as well. Since the major crops are harvested more or less about the same time, there is acute demand for credit during the marketing season and since the export of the crops involves peak demands on the single line transport system to Port Sudan, efficient storage facilities have to be provided. With greater investment in agriculture and opening up of new areas for farming, a more efficient and co-ordinated system of agricultural marketing has become all the more necessary.

To promote a more diversified agriculture, agricultural research has an important role to play. The Government has four research stations, one at Wad Medani in the Gezira which is concentrating on cotton, another at Tozi in the central rainlands devoting its attention to dura and other rainland crops, a third at Hodeiba in the North doing research on riverain crops and the fourth at Yambio in the South working on tropical crops. Besides these four main stations, there are also several pilot research farms, one in the Nuba Mountains for work on America cotton, two in Bahr El Ghazal for rice and sisal and one in Khashm El Girba for investigating the possibilities of growing different food and cash crops after settlement of the displaced population of Wadi Halfa area. The establishment of a research station for work on problems and crops of sandy soils of Kordofan and Darfur Provinces would complete the coverage of the main regions. It is also necessary to widen the range of commodities for experimental work, especially on rotational crops. The Advisory Committee on Agricultural Research was reconstituted in 1957 to include eminent scientists from many friendly countries to review the progress of research work undertaken and to suggest the lines on which further work is to proceed.

Forest products are estimated to contribute about 9 per cent of the gross domestic product. Considerable increase in the production of sawn timber has taken place in recent years and the entire requirements of railway sleepers are now being met. However, import of timber mostly for building purposes amounts to about 52,000 cubic metres. Considering the size of the country, the area under forests is small being only 0.6 per cent. Reservation of areas suitable for timber growing has increased from 1.8 million feddans in 1955/56 to 2.4 million feddans in 1959/60. Inaccessibility of the denser forests in the South renders full exploitation difficult ; this is being gradually overcome with improvement in transport and communications. New plantations are being established over an area of about 3,000 feddans annually. The demand for timber and firewood, however, has been increasing rapidly with the increase in population, while the area of natural forest from which these are obtained has tended to decline with the extension of cultivation. Hence the need for accelerating the programme of forest reservation and plantations. An important forestry product, as mentioned already, is gum arabic whose exports have averaged about 47 thousand tons during the past five years. Research on the silviculture of gum and efforts to improve cultural practices have been in progress since 1958.

Livestock constitutes one of the main potential sources of income of the country. Although no reliable figures of the livestock population are available, it has been roughly estimated to be over 25 millions. At present livestock contributes about 10 per cent of gross domestic product. Export of cattle and sheep have averaged 159,000 head during the last five years. In addition, export of hides and skins has on the average been 5,000 tons annually. The development of livestock has been hampered by the social habits of livestock rearing population, mostly nomadic and semi-nomadic, to whom possession of livestock is more a sign of social prestige than of economic value and by the paucity of water and grazing facilities. Since disposal of animals is limited by social and economic factors, there has been a tendency for the animals to increase in numbers beyond the capabilities of lands served with water supplies. Along with provision of water supplies through hafirs, dams and water yards, measures are being taken for conservation and development of grazing areas and encouraging settlement. Progress has been slow in view of the magnitude of the social and economic problems to be overcome. The main lines along which livestock improvement have been taking place are selective breeding and control and eradication of animal diseases. To improve and augment the supply of milk to urban areas, dairies have been set up at nine centres which, besides utilising surplus milk, provide a source of income to cattle owners. The establishment of the tanning industry is expected to give a push towards the improvement of quality of hides and skins. In fact, the livestock wealth of the country has not been fully utilized and the development of this potential could make a significant contribution to the economy.

As in the case of livestock, there is considerable scope for the development of fisheries, particularly inland fisheries. The contribution of fisheries to the gross domestic product has hitherto been insignificant in view of the lack of full exploitation of this natural resource. The Upper Nile fisheries resources comprising a number of rivers, lagoons and swamps constitute a vast area of virgin waters ; recently some progress has been achieved in training local people in advanced methods of fishing and a new trade in sun-dried fish has been established. Similarly efforts have been made for the development of fisheries in Equatoria Province and in Bahr El Ghazal where, with the establishment of fish farming, the Zandi people, who have for a long time faced a chronic shortage of meat, have now been able to get a valuable alternative. As regards marine fisheries, attention has been mainly devoted to development of pearl shell cultivation in Red Sea. Since fresh fish constitutes a major portion of the diet of a large section of the population and since fish farming provides probably the only lasting solution to the problem of protein-deficient areas, exploitation of fishery resources assumes considerable importance.

10. INDUSTRIAL DEVELOPMENT

The growth of industrial output as a whole—comprising here mining, public utilities and manufacture—was already very briefly discussed in section (5) of this chapter in relation to a table showing the distribution of gross domestic product over different economic sectors. Some further details will be given here even though the share of industrial production in the gross domestic product of the Sudan (2 per cent in 1959/60) is at present very small. However, industrialisation is believed to be vital for the economic development of the country. It is therefore understandable that in contrast to the small share in production, a rather large share of total investment went into the industrial sector (11 per cent for 1955/56—1959/60) and it certainly seems likely that this high ratio will increase throughout the plan period.

Reliable information for the industrial sector is available for 1955/56 and for 1959/60. Though these years are admittedly not very far apart it is still of interest to study in more detail the movement of industrial production during these years. It then appears, first of all, that the growth of the industrial production has been rather uneven for its different components as is shown in the following table.

TABLE 16

Gross Output of Manufacture, Public Utilities and Mining in 1959/60 as a Percentage of 1955/1956

	%
Manufacture	189
Public Utilities	152
Mining	113
Total Gross Domestic Product	122

Public utilities and manufacture have been growing fast, the latter even being the fastest growing amongst the different economic sectors. On the other hand mining has been stagnating.

In the field of mining there are, now, besides the salt industry, some 24 licenced companies, but their output is still negligible. It has already been mentioned in the first section of this chapter that organisational difficulties, rather than scarcity of deposits, lie at the root of the trouble. Some improvement in this situation is expected during the plan period.

Public Utilities have especially increased their electricity output; the value of electricity sold in 1959/60 was 1.74 times the value of sales in 1955/56. The average monthly production in 1959/60 amounted to 7,879,000 kw. hour which is equivalent to a per capita output of 0.7 kw. hour, which is a very low quantity indeed (comparable figures are *e.g.*: India: 3.2 kwh. Ghana: 4.6 kwh., U.K.: 189 kwh., U.S.A.: 387 kwh.) This situation is expected to improve quite considerably during the plan period as a consequence of the electrification of Sennar Dam and possibly that Roseires Dam.

The growth of the different types of *manufacturing industries* is shown in the following table.

TABLE 17

GROSS VALUE ADDED OF DIFFERENT TYPES OF MANUFACTURING INDUSTRY IN 1955/56 AND IN 1959/60

	Gross Value Added (L.S. 000)		Gross Value Added as Per Cent of Total in	
	1955/56	1959/60	1955/56	1959/60
Food manufacturing industries	1,493	2,512	54	49
Flour mills	340	478	12	9
Sweet factories	84	186	3	4
Oilmills ..	1,069	1,707	37	33
Beverage industries and tobacco manufacture	505	655	18	13
Mineral water factories	347	398	13	8
Manufacture of textiles and footwear	25	231	1	5
Manufacture of furniture ..	67	122	2	2
Manufacture of paper, paper products and printing industries	[illegible]	270	3	5
Manufacture of rubber products, chemicals and chemical products	148	458	[illegible]	9
Soap factories ..	131	243	5	5
Perfumeries ..	0	170	0	3
Manufacture of tiles, cement and glass ..	240	517	9	10
Manufacture of metal products (except machinery and transport equipment)	160	255	[illegible]	[illegible]
Manufacture of aluminium Household ware	0	112	0	2
Engineering industries ..	152	164	6	3
Manufacture of machinery and miscellaneous manufacture industries	8	31	0	1
All manufacturing	2,762	5,181	100	100

As can be seen from this table, the growth from 1955/56 to 1959/60 has been rather uneven for the different types of manufacturing industry which has resulted in important shifts in their relative importance as shown in the last two columns of the table. Thus the share of food and beverage industries in total manufacturing output has gone down as these industries were already more developed in 1955/56 when compared with the other types of manufacturing industry. Some of these other types have, on the other hand, increased their shares, notably the textile, footwear, paper and chemical industries. During 1955/56–1959/60 a number of new enterprises have been established in these fields producing commodities that used to be imported.

The output of the manufacturing industry consists predominantly of consumer goods (some 80 per cent). There is no change in this respect from 1955/56 to 1959/60 as most of the new enterprises also produce consumer goods. The production of raw materials is becoming increasingly important; its share in total production went up from 14 to 16 per cent. Most of the raw materials produced are for the building industry (cement, tiles, glass), some are for the transport and distribution sector (packing paper, retreading of tires) but so far no raw materials were produced for agriculture though the imports of these kinds of raw materials amounted in 1960 to not less than L.S. 2.7 million. The output of equipment is very small indeed and its share in total production is decreasing rather than increasing (6 per cent in 1955/56 and 4 per cent in 1959/60).

Only the edible oils industry is producing for the export market, all t other types of manufacturing industry are producing for the local mark As the demand for manufactured products, be it consumer goods, raw materi or equipment, is still to a considerable extent satisfied through imports, expansion of the output of manufacturing industries in this country is larg based on import substitution. This was certainly the case in the peri 1955/56—1959/60: the products, substituted during these years were particular soap, sweets, shoes, beer, ready-made clothing and cement. F the plan period it is expected that this process of import substitution w continue at an increased rate.

Raw materials constitute about 30 per cent of the sales value of man facture and it is likely that a major part of these raw materials is still comi from abroad. In fact, the supply of raw materials of many manufacturi industries was in 1959/60 still rather badly integrated with the rest of t economy. One example is Sudan's export of short-staple cotton and t import of cotton yarn and piece goods, partly for the clothing industry. T situation will in this respect be quite different at the end of the plan perio there will then be much closer relations between industry and agriculture a also between the different types of manufacturing industries themselves.

11. TRANSPORT

Efficient and cheap transport services of adequate capacity are importa in any country but in the Sudan with its vast distances they are vital if pr gress is to be made in increasing output and raising the standard of livin

Earlier in this chapter attention has been drawn to the significant ro played by foreign trade in Sudan's economy. The transport system has t play a most important part in this respect because the production areas f the larger part of the (primary) export commodities as well as the main marke for the import goods are situated far from the main post. There is also muc regional specialization in the production for the domestic market. Furthe more, the transport system has to ensure considerable seasonal and oth movements of labour.

It is natural therefore, that investments in transport were of considerab relative importance in total investment as the following table shows. I will be observed that the investment is concetrated largely under the headin "Public Corporations". The figures in that column concern mainly th Sudan Railways which, although not a statutory corporation, is for statistic purposes treated as such as it has its own separate budget.

TABLE 18

Investment in Transport and Distribution (LS. Million)

	Government	Public Corporation	Private	Total	Total in % of Capital Formation
1955/56 ..	0.7	3.2	0.3	4.2	20
1956/57 ..	0.7	2.4	0.3	3.5	14
1957/58 ..	1.4	4.3	0.8	6.5	17
1958/59 ..	1.2	6.4	1.3	8.9	25
1959/60 ..	1.1	5.7	2.1	8.9	23

For economic—and perhaps also historical—reasons the *Railways* have always played a dominant part in the transport system of the country. At present the Sudan Railways operate from Wadi Halfa in the North to Wau in the South and from Nyala in the west to Port Sudan in the East. There are branch lines to Karima, El Obeid and Roseires and on the eastern route to the coast from Sennar via Haiya. River services are operating between Juba and Kosti and seasonally to Wau and Gambeila,—Khartoum, Karima-Dongola and Wadi Halfa—Shellal.

TABLE 16

RAILWAYS AND STEAMER TRAFFIC

Year	Railways			Steamers		
	Route Kms.	Passengers No. (000s.)	Goods Tons (000s)	Route Kms.	Passengers No. (000s)	Goods Tons (000s)
1951/52 ..	3 300	2,163	1,266	3.500	31	85
1955/56 ..	3.656	2,712	1,660	3.500	42	87
1956/57 ..	3 849	3 313	1,722	3.500	48	76
1957/58 ..	4 040	3.414	1,760	3.500	59	90
1958/59 ..	4 232	3.238	1,948	3.500	68	120
1959/60 ..	4 469	3.133	2,020	3.500	72	95
1960/61 ..	4 479	2 887	2,128	3.500	67	102

Part of the investments in the past period went into extensions and the Sudan Railways is connecting now the main producers and consumer's centres with each other and with the harbour. The rate of growth of freight carried annually by the Sudan Railways apparently has been much higher in the second half of the past decade than in the first which reflects intensified economic development and more rapid growth of foreign trade in the more recent years.

In the plan period railway investment will lay more emphasis on further modernization and on raising the capacity and efficiency on existing lines. That is, no doubt, of greatest urgency not only in view of the expected growth trend in production and foreign trade but also to diminish the difficulties and delays in carriage which sometimes occurred as a result of the seasonal fluctuations in Sudan's foreign trade and as the result of occasional factors like the abolishing of various import restrictions, organizational problems, etc.

The railways provide the connection with Port Sudan harbour on the Red Sea, which accommodates almost all traffic by sea to and from the Sudan. In most respects this harbour is considered as an up-to date port with all necessary facilities. Various improvements have been carried out in the harbour in recent years.

TABLE 20

SHIPPING IN PORT SUDAN

	Number of Ships	Tonnage in 000 Tons	
		Imported	Exported
1951/52	1,012	718	440
1955/56	1,159	790	554
1956/57	900	839	597
1957/58	1,206	1,088	547
1958/59	1,164	858	580
1959/60	1,312	981	707
1960/61	1,312	1,078	690

As for *Road Transport*, it must be stated that there is an almost complet absence of established roads in the northern and central provinces of th Sudan. On the other hand, established tracks exist in every direction. Heav transport and passenger carrying vehicles use these tracks when climati conditions permit. It is understandable that under these circumstance traffic by road is relatively costly. The number of motor vehicles total some 30,000 at present of which some 15,000 are passenger carrying vehicles Some road construction projects were launched in recent years and th feasibility of other projects like the Khartoum—Port Sudan road are being studied now. Many of the larger towns have bituminous roads in the centres In the South of the country, in the provinces of Bahr El Ghazal and Equatoria a few established roads are in existence.

Traffic by Air has been rapidly developing in the last decade, Sudan Airways—a Government owned airline—operates regular internal air services in Sudan between the main centres and externally between Sudan and adjoining countries and London. The rapid growth of the number of persons carried annually, *viz.* from 26,000 in 1956 to 51,000 in 1960 shows the importance which air transport is attaining in the country with its vast distances. Furthermore, the international airport at Khartoum is being used by most international airlines operating through Africa.

12. SOCIAL DEVELOPMENTS

The previous sections of this chapter were mainly concerned with economic development but it goes without saying that social aspects of Sudan development are very important as well. The term social aspects here covers such services as education, health, housing and cultural facilities.

The first population census held in the Sudan in 1955/56, has provided a global measure for educational attainment in the literacy rate, which is shown for different ages in the table hereunder. The total literacy rate for both sexes together was on the 1st January, 1956 some 13 percent; this is a low rate but it is not lower than in many other African countries. It would also be pointed out that the literacy rate is much more favourable for young persons than for older ones which implies that the situation in this respect is improving. The same favourable development has undoubtedly persisted after the census date in view of the attention that has been given to education since independence. In fact, the number of pupils in Government schools in the academic year 1960 61 was nearly twice as much as in 1955 56. At the same time the number of pupils in private schools has been increasing as well. Technical education in particular has expanded during this period which is difinitely to be applauded as the plan will entail such a heavy demand for technicians of all types and levels. In 1960 61 the overall rate of literacy for both males and females was 15 per cent ; by 1970 71 it is estimated that it will go up to 25 per cent.

TABLE 21

LITERACY RATE BY AGE GROUPS

Age Group	Rate of Literacy (percentage) 1.1.1956	
	Males	Females
10—14	32.8	11.3
15—19	30.5	7.0
20—24	29.0	4.6
25—34	23.5	1.7
35—44	15.8	0.8
45—54	9.0	0.6
55—64	7.0	0.6
65 and over	3.8	
TOTAL	23.1	4.4

Source :—Ministry of Education

Notwithstanding this improvement in schooling capacity, existing elementary schools do not absorb all children of school age. The rate of enrolment for children of the age of seven was, in 1960 61 43 per cent for boys and only 18 per cent for girls. Moreover there are important disequilibrium places of schools of succeeding levels. Thus, for instance, on the average for the whole country only 16.5 per cent of all boys leaving an elementary school stood a chance for entering intermediate education. The pressure and need for the expansion of education facilities is very strong indeed.

The provision of *Medical Facilities* has also much improved since independence. This is true for the number of hospitals, dispensaries and dressing stations as well as for the medical performances. This appears very clearly from the following table :—

TABLE 22

SOME MEDICAL STATISTICS FOR THE SUDAN

YEAR	No. of Hospitals	No. of Beds in Hospitals and Dispensaries (000)	Number of Dispensaries and Dressing Stations	Number of in-Patients (000)	Number of Operations (000)
1949	40	7.7	—	151	21
1951/52	40	8.3	..	160	26
1952/53	40	8.4	—	164	26
1953/54	40	8.4	594	173	34
1954/55	44	8.8	674	171	38
1955/56	47	8.7	740	155	38
1956/57	50	9.6	788	177	54
1957/58	51	10.4	842	172	50
1958/59	53	10.6	908	217	65
1959/60	57	11.4	937	186	87
1960/61	60	12.6	1 003	191	86

Preventive medicine has also improved. Sanitary conditions (*e.g.* water supply, sewage systems, housing and town planning), social hygiene (*e.g.* midwifery, maternal and child health centres, school examinations) and research facilities were given more attention. There is however, still great need for the expansion of preventive as well as curative medical facilities.

As for *Housing Conditions*, it is of course well understandable, that for such a large country as Sudan they differ in the various regions. In general it might be said that houses in the rural area are much less costly and durable than houses in towns. In fact, for national accounts purposes only houses in towns with a population of 5,000 and over were considered as capital goods, while all the other houses are considered as consumer goods.

Traditionally the building of houses is left to the private sector. The Government has so far refrained from becoming engaged in house building except for special purposes such as the supply of houses for expatriate staff.

The Government has, however, greatly stimulated house building by different ways and means: first among them should be mentioned town-planning. In general Sudanese towns are unusually roomy and very neatly laid out. The Government provides also loans for officials and undertakes investigation and research in housing.

Finally some attention may be given to various cultural aspects of social developments. Some statistical information is presented in the following table (Table 23). It should be kept in mind, however, that according to the first population census in 1955 56 92 per cent of the total population lived in the rural area and that only 13 per cent was by then literate. Thus it is not surprising that in relation to total population the figures in the table are low when compared with economically more developed countries. although they are of the same order of magnitude as in other parts of Africa. These ratios appear much more favourable when the number of newspaper copies, of library borrowers, etc. is compared with the number of literate people. Thus it has for instance been estimated that the libraries provide one book for every four literate persons.

TABLE 23

SOME CULTURAL STATISTICS FOR SUDAN

spaper Circulation per 1,000 Persons (56)	3.0
owers from Libraries per 1,000 Persons (1960 61)	7.4
ors to Museum per 1,000 Persons (1960 61)	2.4
na Attendance per Person per Year 1957	1.4

igorous efforts are now being undertaken to promote *Community Develop-* through several ways : *e.g.* adult education, women's social welfare work, cy compaigns, young people's clubs, evening classes, etc. These efforts specially directed at the rural areas and at the spread of modern civiliza- to the country side.

The various aspects of social development that have been briefly men- d above are, of course, related to each other as well as to economic lopment. Thus, for instance, an increase of the literacy rate will lead n increasing demand for cultural activities. An improvement in general th conditions is closely related to good housing conditions. Moreover nprovement in health conditions may possibly result in a higher dispro- ion between birth and death rates with the consequence that the popula- will increase even more rapidly, a happening of vital interest to economic lopment.

In general, an improvement of social conditions will be restricted by the ls that can be made available. In this way social development is com- ng with economic development but as the funds for social development ultimately from economic development, a careful balance between what esirable and what is possible has to be sought.

CHAPTER II.

SECTION I.

THE OBJECTIVES OF THE PLAN AND THEIR REALISATION

The objectives of the Plan can be briefly listed as follows :

(a) An appreciable increase in real income per head through a satisfactor growth of the total national production ;

(b) To promote a broadening of the structure of the Sudan economy

(c) A considerable increase of exports and of import substitution ;

(d) Further improvement of social conditions and services includin general and technical education and the creation of sufficient oppo tunities of productive employment.
Further, those broad objectives should be fulfilled under the co dition of :

(e) The maintenance of a relatively stable price level.

This Chapter and the succeeding ones will give a detailed explanation these general objectives and a discussion of the extent of their realization i the plan period.

THE FIRST OBJECTIVE : THE GROWTH OF PRODUCTION AND OF REAL INCOM PER HEAD OF THE POPULATION :

It may be estimated that prior to the inception of this plan total nationa income was about LS. 350 million or LS. 30 per head. The population i growing rapidly at some 2.8 per cent per year and it will double within 25 years. Therefore, even to maintain the present level of income per head it would be necessary to raise total national income to twice its present value of LS. 350 million in the same period. In order to double national incom per head, the total value of productive activity in the Sudan and of the income originating from that activity should then be quadrupled in the same span of 25 years. It cannot be doubted that this is a heavy requirement considering that at the same time the other objectives have to be fulfilled too.

This raising of income per head to twice the present level would put the nation as a whole well on the way to the beginning of that stage of economic development which is called the "take-off stage" or the stage of "self-sustained growth." This does not exclude the possibility of some parts of the nation surpassing that stage of development, and some other parts being quite near to it. For instance, the income per head in the modern part of the economy would, according to necessarily very rough estimates, reach a level of over LS. 65 at the end of the first ten year plan period. Such a level is comparable to that enjoyed at present by *e.g.* Turkey (average whole economy) and considerably surpasses the average for the whole economies of Morocco and Tunisia. It might further be observed that this modern part of the Sudan economy accounted in 1960 61 for about ¼ of the total population and that this percentage will increase during the plan period. Furthermore, it is presently estimated that the per capita income in the Central Area of Gezira triangle is already about LS. 68 to LS. 75.

Compatible with the above long term aim for the whole economy, is a growth of total national income by some 65 per cent and of per capita income by some 25 per cent in the first ten year plan period. While this growth rate is satisfactory from the long term point of view, it has also been established that it is at the same time a feasible rate of growth given the resources that can reasonably be expected to be made available during the plan period and that development expenditure of projected magnitude will not lead to inflationary developments.

As can be seen from the following table the rise of total domestic production as planned for the ten year period will achieve this aim :—

TABLE 24

PROPOSED GROWTH OF GROSS DOMESTIC PRODUCT AND POPULATON 1960/61—1970/71

	60/61	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71
I. GROSS DOMESTIC PRODUCT (1) (IN LS. MILLION)											
(a) Traditional Part of Economy	(2) 187.2	(2) 193.3	199.7	206.3	213.1	220.1	227.4	231.9	242.7	250.7	259.0
(b) Modern Part of Economy ..	170.0	191.8	190.6	200.7	213.6	227.3	241.9	260.5	280.6	302.2	325.5
(c) Whole Economy	357.2	385.1	390.3	407.0	426.7	447.4	469.3	495.4	523.3	552.9	584.5
II. POPULATION (IN THOUSANDS)	11.928	12.264	12.610	12.966	13.332	13.733	14.120	14.518	14.927	15.348	15.781
III. GROSS DOMESTIC PRODUCT PER HEAD (IN LS.) OF WHOLE ECONOMY	29.95	31.40	30.95	31.39	32.00	32.58	33.24	34.12	35.19	36.07	37.04
OF WHICH : MODERN PART (3)	53.13										65.10

(1) At factor cost, *i.e.* excluding indirect taxes and subsidies.

(2) The figures for 1960/61 and 1961/62 are provisional estimates of actual performance in those years. The corresponding "trend" figures are LS. 166.5 million and LS.177.2 million for the modern part. The large difference between the estimated and actual figure in 1961/62 is due to higher average yield and higher prices of cotton in that year than assumed as normal for the whole plan period. Actual performance after 1961/62 may of course also fluctuate considerably around the trend figures in the table.
The rise in trend values over the whole period is :—

(a) for the modern part from LS. 166.5 million to LS. 325.5 million	95.5%	(total g.d.p.)
(b) for the whole economy from LS. 353.7 million to LS. 584.5 million ..	65.3%	.. ..
(c) for the whole economy per head from LS. 29.65 to LS. 34.04	24.9%	

The percentages : 95.5%, 65.3% and 24.9% have been used in the text

(3) Based on very rough estimates for population in that part.

As in Chapter I, gross domestic product was distributed over a traditional and a modern part of the economy. Though this device has been applied primarily for statistical reasons and for planning techniques yet it also gives, however, rough indication of the relative importance of the modern type production. As stated before the importance of the modern sector will increase further during the Plan period. It is expected that the total production of that sector could grow by some 95 per cent in the Plan period compared with a growth of 38 per cent for the traditional sector in the same period. As a consequence of this, the total gross domestic product of the whole economy would grow by some 65 per cent over the whole period. At the same time the population of the Sudan might increase from 11.9 million people in 1960/61 to 15.8 million in 1970/71 or by some 32 per cent. This implies that the per capita gross domestic product and also national income per head of the population will rise by about 25 per cent.

From the above, it can be stated that the first objectives of the Plan will be achieved, but it may be useful to examine the implications further in relation to the respective roles of the modern and traditional parts of the economy. For although at first sight the "imbalance" in the economy between the modern part and the traditional part might be criticised, particularly in respect of the difference in *per capita* incomes, the Plan in fact turns this imbalance to advantage by using the resulting higher rate of domestic savings in the modern sector to develop *both* parts of the economy, the "modern" and the "traditional" alike, and to achieve a higher rate of overall growth than would be attainable if the entire economy were at the "traditional" level, or even if it were somewhere between that and the present level of the "modern" part. The "traditional" sector will expand more slowly than the "modern" part, but that is the inevitable consequence, at the present time, of its backwardness, and the lack of adequate communications, agricultural and social services and of the economic infrastracture required for rapid development. The plan intends that these deficiencies should be remedied in growing measure during the coming years, so as to provide the springboard for greatly accelerated development in the next plan. For with the rapid growth in development and savings in the modern part of the economy, investment programmes will be possible of a magnitude which will gradually but progressively lift the traditional sector on to a new plateau from which it can then expand more rapidly and they will do this while still sustaining the high rate of growth of the dynamic element, the modern sector. Without these "modern" sector savings, therefore, the progress of the entire economy would be much slower and that of the traditional sector insignificant. Even so the benefits to the traditional sector are not confined to the figures quoted in the top line of the preceding table, for part of it will be drawn into the modern sector as the latter expands. Thus the population of the modern sector in 1960/61 is estimated at 3.2 million with an average national income per head of LS. 53; by 1970/71 the corresponding figures (based on estimates of the employment which will be generated, and of the average size of family) are 5.0 million and LS. 65 respectively. But of these 5.0 million it may be estimated that little more than four million will represent the natural growth of the existing population in these areas, so that about three quarters of a million people will have been drawn into the "modern" sector from the "traditional". Thus despite the general growth in numbers, the *proportion* of the population sharing in the benefits of a more modern economy is expected to rise even during the first Plan from about *one quarter to one third* of the nation and at the same time the average national income *per head* in the modern sector will rise, by about 22 per cent, to levels now only enjoyed the more prosperous parts of it. The relative share of the modern sect in the gross domestic product will also rise, from 47 per cent to 56 per cen during the Plan period. All this can surely be counted as a satisfactory pro pect for a national progress.

THE SECOND OBJECTIVE : BROADENING OF THE ECONOMIC STRUCTURE

As has been pointed out in various sections of the previous chapter th one-sided structure of Sudan's economy in general and of its exports i particular has definite drawbacks and it is therefore generally agreed tha a certain diversification of the pattern of output and of exports is desirabl

The broadening of the basis of the economy is of course a structural an long term process, which cannot be completed in the relatively short perio of ten years. Bearing that in mind, the shifts shown in the next table ar considered, in many respects, to provide a satisfactory progress towards th fulfilment of this objective in the Plan period.

TABLE 25

SHIFTS IN PATTERN OF PRODUCTION AND OF EXPORTS IN THE PLAN PERIOD

Composition of Gross Domestic Product by Broad Economic Sectors

	in LS. Mln.		in % of total	
	60/61	70/71	60/61	70/71
Agriculture, Forestry, Livestock, Fisheries . .	202.9	299.8	57	51
Industry, Mining, Public Utilities . .	32.5	93.0	9	16
Transport, Commerce . .	52.0	82.2	15	14
Administration . .	69.8	109.5	19	19
TOTAL ECONOMY . .	357.2	584.5	100	100

Composition of Domestic Exports by Main Items

	in % of total	
	58/60	70/71
Cotton (lint, seed, oil, cakes) . .	65	61
Gum Arabic	11	7
Groundnuts, Sesame . .	13	10
Others	11	13
TOTAL EXPORT . .	100	100

The shift in the composition of the domestic production would mainly consist of a considerable increase in the share of industrial production at the expense of the share of pastoral activity. As far as the export pattern is concerned the traditional major export items cotton and gum show a decrease in relative importance where oil seeds would improve their position as a second major export commodity. Furthermore, an increase in the share of other commodities besides cotton, gum and oil seeds is expected.

Another important aspect of the diversification of the economy follows from the considerable import substitution embodied in the plan. In fact, the increase of industrial production is largely based on such import substitution which of course diminishes the dependence of the economy—and especially of consumption—on foreign exchange earnings.

This industrial expansion will range across a wide variety of items, mainly consumers' goods plus some building materials, with petrol refining as a special and outstanding feature. (So far it appears that the crude oil will still have to be imported). Although this means that the percentage share of agriculture and allied activities will fall (from 57 per cent to 51 per cent), the absolute value of the output of this sector is expected to rise from about LS. 200 to LS. 300 million a year during the Plan, and to be accompanied by considerable diversification in the crops and products produced. Thus there will be notable developments or expansion in the output of sugar, wheat, rice, coffee, tea and tobacco; more short-staple cotton will be grown and processed within the country, more milk products and fruit will be processed or canned for local consumption.

Still another aspect of diversification is the geographic dispersal of economic activity. It is foreseen that every part of the country will benefit by the execution of the Plan. This will particularly be the case through the investments in transport facilities, in educational and social services, and through various productive and research projects in livestock, agriculture and forestry. Some of the new products such as rice, coffee, tea and tobacco will constitute important features of development in less developed areas (such as the South) hitherto dominated by traditional activities. It may also be pictured that in general more advanced growth in one region will spill over into other regions and that the former will partly supply the resources —without arresting its own growth—to develop the latter.

The Third Objective: A Considerable Increase of Exports and of Import Substitution:

Unavoidably the rapid economic development foreseen in the plan period will place a heavy burden on the foreign exchange position. The rapid expansion in investment must be reflected in increased imports of capital goods which cannot be manufactured at home; the expansion of industry, utilities and transportation services will raise the demand for imported fuel and raw materials; the growth of personal incomes will increase the demand (both in value and variety) for consumer goods at present imported; last but not least overseas borrowing (although it will of course afford temporary relief by meeting the cost of many of the capital goods required) will increase the country's requirements of foreign exchange to meet the subsequent capital and interest payments.

To meet this problem the Plan envisages a two pronged approach, *viz.* (1) the expansion of exports and (2) the introduction and increase of local production of many goods at present imported, *i.e.* "import—substitution." Only then can it be expected that the foreign debt of the country (see Section 3 of this Chapter) will not increase beyond reasonable proportions.

It has been projected that total exports will reach a level of LS. 100 million towards the end of the plan period. The following table shows how this level could be reached:

TABLE 26

PROJECTION OF EXPORTS IN PLAN PERIOD (1)

(*LS. Million*)

COMMODITIES	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71
COTTON (lint, seed, oil, cakes) (2)	41.0	50.0	44.3	45.1	45.0	46.8	49.9	53.0	56.1	59.7
GROUNDNUTS (seed only)	5.2	4.9	5.2	6.0	6.9	7.7	8.7	9.7	10.4	11.0
SESAME (seed only)	5.4	5.2	5.6	6.0	6.4	6.7	7.0	7.3	7.6	8.0
GUM ARABIC	5.9	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.2	6.4
CAMELS (camels, sheep, hides)	4.7	4.7	4.8	4.8	4.8	4.8	4.9	5.0	5.1	5.2
OTHER COMMODITIES (3)	3.4	4.0	4.4	4.8	5.2	5.6	6.0	6.4	6.9	7.5
TOTAL DOMESTIC EXPORTS	65.6	74.2	69.8	72.3	74.0	77.4	82.4	87.4	92.3	97.8
RE-EXPORT	2.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	4.0
TOTAL EXPORTS	67.6	77.3	73.0	75.6	77.4	80.9	86.0	91.1	96.1	101.8

(1) Actual results may of course fluctuate considerably around the trend figures in this table which do, however, take account of anticipated increase in the production resulting from various projects in the Plan itself.

(2) Cotton figures are based on the assumed average value of LS. 11.0 per kantar *f.o.b.* Port Sudan and an average yield per feddan of 4.5 kantars for Gezira and 3.8 for private estates (long staple); the high figure for 1962/63 is due to the above average crop in 1961/62, and the low figure for 1961/62 is due to the fact that the cotton crop of the preceding year was below average.

(3) Includes minerals.

As far as cotton is concerned, the table above is based on an expansion in the area under cultivation which will increase by some 526,000 feddans. The second footnote to the table shows the averages for price and yields per feddan that have been taken into consideration. Particulars about this and other products are given in the sectional chapter of agriculture. For the other products the export-prognosis relies to a large extent on the continuation of trends in the more recent past. For groundnuts, however, additional allowances have been made for the prospective cultivation in the irrigated area. Market research has indicated that the long term prospects for international markets of various oilseeds are not unfavourable. The increasing relative importance of such seeds in the Sudan's export pattern can be considered therefore as a satisfactory feature. It may further be remarked that the export prognosis for the first plan-period also takes into account a certain modest increase in mineral exports, which could consist among others, of copper concentrate, manganese, asbestos and iron-ore.

As already mentioned, the development efforts and the consequent increase of national income will have a considerable impact on the level of imports. A rough approximation of this impact in the main categories of goods has been worked out in the following table :

TABLE 27

(*)
PROJECTED TRENDS IN IMPORTS DURING THE PLAN PERIOD

1960/61—1970/71

(In LS. Million)

ITEM	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71
1. Consumer goods	41.9	45.7	47.3	50.1	53.1	56.2	60.1	64.4	69.2	74.3
2. Raw materials other than building materials	15.3	15.2	16.1	17.1	18.2	19.4	20.8	22.4	24.2	26.0
3. Building materials and equipment ..	27.3	35.2	31.3	28.1	26.3	26.5	28.3	28.0	29.3	30.8
4. Total imports before import substitution	84.5	96.1	94.7	95.3	97.6	102.1	109.2	114.8	122.7	131.1
5. Less import substitution	0.7	4.1	8.6	9.9	13.1	16.8	19.9	22.3	26.5	30.9
6. Final import value	83.8	92.0	86.1	85.4	84.5	85.3	89.3	92.5	96.2	100.2

(*) Actual year-to-year figures may of course fluctuate considerably around the trend.

The trend of import requirements calculated in line 4 of the tabl not take into account, however, an important feature of the plan, *v* increase in the substitution of normally imported consumer goods an materials by local production. A careful estimate of the total value o import substitution for each year is shown in line 5 of the above table as in the next table the foreseen import substitution has been specifi commodity and quantity for the last year of the Plan period.

Two items, *viz.* cotton yarn and cloth and sugar, would alone ma for two fifth of the total import substitution.

TABLE 28

PROJECTED RESULTS OF IMPORT SUBSTITUTION BY 197

Commodities Substituted	Unit	Quantity	Valu LS.
Rice	000 ton	7.0	
Wheat	000 ton	70.0	1
Sugar	000 ton	150.0	5
Coffee	000 ton	2.0	
Tea	ton	330.0	
Cigarettes	mln. pieces	792.0	
Canned fruit	000 ton	2.4	
Milk powder	000 ton	0.8	
Railway sleepers and timber ..	000 cu. ft.	36.0	
Cotton yarn and cloth	000 ton	15.9	8
Ready-made clothing			
Footwear	mln. pairs	5.5	1
Pharmaceutical products			
Paints	000 ton	2.1	
Cement	000 ton	58.0	
Glass and glassware	000 ton	10.0	
Matches	mln. pieces	5,770.0	
Paper and cardboard	000 ton	5.0	
Fertilizers	000 ton	90.0	1,
Insecticides		)	3
Refined petroleum products ..		)	
Unforeseeable			3
TOTAL ..			30,

Another notable aspect of the planned substitution is its close associa with the planned expansion of agricultural production within the Su This expansion will either supply the consumer goods directly *e.g.* sugar, wheat, coffee, or indirectly by supplying raw materials to those indus which are producing local substitutes for imports *e.g.* cotton yarn and c cigarettes and others. Thus there will be a welcome growth in the integra and cohesion of the various branches of Sudan economy.

It may also be pointed out that during the plan period chemical industries (in the private sector) will experience a considerable growth, notably in the field of insecticides, fertilizers and petroleum refining. Such development will most likely come to full fruition in the second half of the plan period and this is one of the reasons for the more rapid growth in the planned import substitution by then. It is of course also difficult to anticipate fully for as long a period as ten years, the effects of the various inducements given by the Government to the establishment of import substituting industries but it is thought that this will be appreciable even though the exact items and quantities cannot be forecast. This explains the inclusion of an item "unforeseeable" in the table for the last three years of the Plan period.

The import substitution would account for LS. 23.7 million of consumer goods, LS. 3.1 million of raw materials for building as well as LS. 4.1 million of other raw materials. As a consequence of this the relative share of consumer goods in total imports would decrease from 53 per cent in 1960 to some 50 per cent at the end of the Plan period despite a considerable growth of consumption, whereas the shares of the category "equipment and building materials" and of the category "other raw materials" would increase from 27.4 to 28 and from 19.6 to 22 per cent respectively. These shifts in the composition of imports must be judged favourably from the point of view of economic development.

To sum up: the Plan anticipates that exports will rise to LS. 102 million and imports to some LS. 100 million a year by 1970/71. Thus it is envisaged that by the end of the plan period the visible trade of the country will be roughly in balance, although over the Plan period as a whole, there will be a total deficit in trade of LS. 68.5 million (see lines 1, 2 and 3 in Balance of Payments Projection hereunder). In addition to this, a deficit in the so-called invisible export and import items should be expected. These items concern payments for or receipts on behalf of the services rendered by or to foreign countries. In Chapter I the main factors responsible for a persistent deficit on "invisibles" as a whole were explained, and these must be expected to continue during the coming decade. The deficit will even tend to rise, particularly in the latter years of the Plan, on account of interest payments on foreign borrowing unless the Government is able to finance the major part of its foreign exchange requirements by soft term loans or grants. Thus the present surplus of Government receipts over payments on account of interest is likely to be reversed towards the end of the Plan period (compare lines 4 (a) and (b) of the Balance of Payments Projection). As regards the other categories of invisibles, payments for transportation are likely to go up together with the increase of exports, though their rise may be less than proportional due to the gradual supply of more transport facilities, etc. by Sudanese companies. Another important category is that comprising Government payments for miscellaneous services. This includes among other items, freight on Government imports purchased *f.o.b.*, and their level will rise considerably in the plan period. Lastly, there is the remittance abroad of private earnings. These were fairly stable in 1958/60, at about LS. 1.5 million per year; Sudanisation may tend to reduce this figure in the future, although this might be offset to a certain extent by the inflow of more foreign exports temporarily required for development projects. All in all it is expected that the present annual deficit in invisibles (other than Government interest) might gradually increase from present level of LS. 5 million to over LS. 8 million during the Plan period, so that the total deficit over that period would not be less than LS. 60 million (see line 3 in Balance of Payments Projection hereunder).

The movement in foreign trade and in invisibles discussed above is expressed in the upper part of the Balance of Payments Projection that now follows:

TABLE 29

PROJECTION OF THE BALANCE OF PAYMENTS

(L.S. Million)

	(1) 61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	Whole Period
I. CURRENT ACCOUNT											
1. Exports	67.6	77.3	73.0	75.6	77.1	80.9	86.0	91.1	96.1	101.8	
2. Imports	83.8	92.0	86.1	85.4	84.2	85.3	89.3	92.5	96.2	100.2	
BALANCE OF TRADE	−16.2	−14.7	−13.1	−9.8	−7.1	−4.4	−3.3	−1.4	−0.1	1.6	−68.5
3. Net Invisibles (Excl. Govt. Int.)	−7.5	−5.0	−5.5	−5.9	−6.3	−6.7	−7.2	−7.7	−8.2	−8.7	−68.7
4. Govt. Interest											
(a) Receipts	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	15.0
(b) Payments	−0.9	−1.0	−1.5	−2.1	−2.5	−3.0	−3.2	−4.0	−4.4	−4.7	−27.3
Total Deficit on Current Account ..	−23.1	−19.2	−18.6	−16.3	−14.4	−12.6	−12.2	−11.6	−11.2	−10.3	−149.5
II. CAPITAL ACCOUNT											
5. Official Capital											
(a) Inflow (1)	17.9	22.0	22.6	18.9	16.7	14.3	14.3	14.4	14.8	14.4	171.2
(b) Repayments on Foreign Loans	−3.8	−5.0	−5.5	−4.5	−4.8	−4.4	−5.0	−6.1	−7.1	−7.9	−54.1
Official Capital Net ..	14.1	17.0	17.1	14.4	11.9	9.9	9.3	8.3	7.7	6.5	117.1
6. Private Capital Net (1) ..	3.0	1.3	1.5	1.9	2.5	2.7	2.9	3.3	3.5	3.8	26.4
TOTAL NET CAPITAL INFLOW ..	17.1	19.2	18.6	16.3	14.4	12.6	12.2	11.6	11.2	10.3	143.5
III. Increase (+) or Decrease (−) Foreign Reserves	−6.0										−6.0

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(1) These terms should be understood as Government foreign borrowing and private foreign borrowing respectively; thus e.g., "Government Official Capital Inflow" in the table comprises all capital to be obtained from abroad by Government and Government bodies either from public or from private foreign sources.

Thus taking all current transactions together the outlook is for a cumulative deficit of about LS. 150 million which would have to be covered by capital inflow from abroad save for an amount of LS. 6 million which represents a decrease in own foreign exchange reserves in the first year of the period. In addition to this, the country will have to commence or continue repayments of principal in respect of loans raised abroad before or during the life of the Plan. A conservative estimate puts the sum involved (of which further particulars will be given in section 3 of this Chapter) at some LS. 54 million (line 5 b of above table). It follows, therefore, that the total inflow of foreign capital should be LS. 198 million that is LS. 144 million plus LS. 54 million. It has been estimated that LS. 26 million of this amount would represent (net) private foreign capital inflow (see line 6 in the same section) and that the remainder, or LS. 171 million, would be obtained in the form of official capital inflow (line 5 a).

Assuming that this official capital has to be obtained largely on conventional loan basis (save for an assumed inflow of grants of LS. 26 million and Wadi Halfa compensation of LS. 11 million) then the official foreign debt would increase by LS. 80 million, *viz.* LS. 171 - LS. 54 (repayment) LS. 37 grants, etc.). At the beginning of the Plan period this debt amounted to LS. 26 million. Thus, the anticipated level at the end of the period would some LS. 106 million. This might raise the annual debt servicing to some LS. 13 million or to some 12 per cent of export earnings compared with about 4 per cent in 1961/62. This 12 per cent can probably be considered a maximum as it is based on the assumption that the whole increase in foreign debt would consist of loans on normal interest and repayment conditions (see section 3 of this Chapter). There can be little doubt that such a debt service would constitute a very heavy burden on Sudan's balance of payments as well as on the financial resources of Sudan Government and it is therefore imperative if development is not to be impeded that as large a part as possible of the official foreign capital required from abroad should be obtained in the form of soft term loans or grants.

The Fourth Objective: Further Improvement of Social Conditions, of General and Technical Education and of the Employment Situation

It has already been pointed out that the fourth objective competes with the other objectives of a more economic nature. However, the amounts allocated for public investment in social services and education—*viz*: LS. 85 million (including general administration)—together with the amounts expected to be invested by the private sector mainly housing) are sufficient to lead to substantial improvement of social and educational conditions. Furthermore, it is expected that an appreciable portion of any additional investment which will be undertaken if additional finance becomes available see Section 5 of this Chapter) will be allotted to the development of social services.

In the second part of the Plan (Chapter VI), progress and investment in the social sector has been charted out in detail. A general impression will therefore only be given here. The last part of the fourth objective dealing with the employment situation and technical education will however be treated in some detail here instead of in the second part of the Plan.

Health: It may of course be expected that the rise in the standard of living as a consequence of the development plan as a whole will by itself raise health standard to some extent through better nutrition, housing, sanitation, water supply and health knowledge. However, a programme directly aiming at the improvement of health conditions is also part of the plan. In this programme (see Part II, Chapter VI) attention has been paid both to preventive and to curative health services, but furthermore and in relation to both aspects, measures in the field of medical education, pre-medical training and medical research are also included in the Programme. The main features are firstly an appreciable expansion in hospital accomodation, dispensaries and health centres, secondly a major improvement in schooling facilities for nurses and midwives and lastly the establishment of eleven well equipped clinical laboratories situated throughout the country. It is expected that the number of hospitals will increase from 68 at the end of 1960/61 to 102 by the end of the plan, and the number of dispensaries from 552 to 738. Furthermore, the number of hospital beds is to be increased by more than 33 per cent and the number of health centres by 85.

Housing: It has already been pointed out that housing conditions and house building differ considerably in the various regions of the country. It is expected that the supply of traditional or African style housing in rural areas will on the whole keep pace with population increases. In various ways Central and Local Government will assist this process, *e.g.* by solving difficulties with respect to building sites, and by research into types of construction, materials used, etc. Investments in the improvement of rural water supply, electricity and telephone services, and extension of administrative, social and economic services in the rural areas are also an integral part of this plan. Considerable Government investment in modern type house building in the Khashm El Girba region is also included, and in addition a substantial number of various classes of modern type of houses for the accommodation of the personnel needed for the health, education and other projects. However, modern type house building is largely concentrated in towns and investments there will mainly have to come from the private sector but even here the Government contributes in this respect through the housing loans & grants to its officials which average over half a million pounds a year.

It would be virtually impossible for the Government to allocate a substantial part of its scarce resources for modern house building at a time when so many other types of investments will have to be carried out. However, in the next section of this Chapter it will be observed that quite considerable private investment in modern housing is expected to be forthcoming in the plan period. It is considered to be the task of the Government to create sufficient inducements so that a large part of those investments will find their way into housing for lower and medium income groups. Unfortunately, it is not yet possible to give a complete statistical picture of the housing situation in the Sudan as a whole. Statistical and other research into this matter will be intensified and correlated with town-planning activities.

Other Social Services

Besides health and housing many other social services are the current concern of various Ministries, Departments and other public agencies. The Plan provides not only for the continuance of such tasks but also for their expansion and improvement. The Government recognizes however that there may be other problems of a social and sociological nature which are still unrecognized and hampering development. Research in these fields will therefore be stepped up in order to appraise the magnitude of such problems and to find proper solutions to them.

Education : The measures and investments scheduled for the Plan period in order to raise the level of education will be dealt with in some detail in Chapter VI. In this Chapter some information regarding technical education will also however be given when discussing the employment situation. Educational advancement is a complicated matter. Expansion in the various levels of education — that is primary, secondary, technical, vocational and university education — is closely inter-related. Expansion at any one level necessitates expansion at other levels. On the other hand, the limited resources that are available to the country dictate the adoption of priorities among the different branches and levels of education. The goal of universal primary education is thought to be achieved as rapidly as possible. By the end of the Plan the percentage of children able to find places in the primary schools will be 42 for boys and 18.5 for girls whereas the chances now available in full elementary education are 18.4 per cent for boys and 8.4 per cent for girls. The length of the period required to attain universal literacy could be attained but is essentially a matter of resources and for this reason it is unavoidably a long term goal. Considered in that context the planned progress is undoubtedly substantial. In the short run there are also various educational bottlenecks to be dealt with *e.g.* the creation of the skills vital for development. This aspect of planning is closely inter-related with the last part of the fourth objective which will be discussed now.

Employment Situation : It is expected that the *male* labour force (taken as being between 15 and 64 years of age) will grow in the plan period from 3.0 million persons to 4.0 million. A very rough estimate of the increase in the number of *female* workers of the same age groups amounts to some 400,000 *viz.* from 1.3 million to 1.7 million persons. Thus the growth of the total-labour force would be 32 per cent. On the other hand, the gross domestic product of the country (as planned) will rise by 65 per cent in the Plan period. The remarkable difference between these percentages is largely explained by greater relative increase of the number of workers in the modern part compared with the traditional part of the economy. This is due to a shift of workers towards the modern part of the economy in which the productivity per worker is several times higher than in the traditional one.

It can thus be concluded that the plan would fulfill the quantitative aspect of the employment objective ; *viz.* that despite a substantial growth in the working population it would lead to a satisfactory employment situation in the country as a whole with respect to both the number of jobs and a shift from less productive to more productive employment. As to the regional situation, research is still going on, but it can already be foreseen that the above-mentioned shift of man-power which is invisaged from the traditional part to the modern part of the economy is likely to imply at the same time certain movement of labour from one region to another.

Referring to the qualitative aspects of employment it can also be visualized that the rapid development of the economy — as described in general terms here and in more detail in subsequent chapters will result in a substantial increase in the demand for technical skills of all types and all levels. Efforts have been undertaken to quantify the total increase in demand for labour as well as the details of the required skills, but it must be admitted from the outset that the statistical basis for such an assessment is still not very reliable.

The following table attempts to give a very rough picture of the labour required by the Plan in the modern sector of the economy:

TABLE 30

ROUGH ESTIMATE OF ADDITIONAL MANPOWER REQUIREMENTS FOR PLAN PERIOD IN THE MODERN PART OF THE ECONOMY

(000 PERSONS)

		TECHNICAL				
		Managerial, Professional, Sub-professional	Skilled Craftsmen, Drivers	Semi-skilled, Unskilled	Administrative, Clerical, All Levels	Total
1.	Modern agriculture and forestry	1.3	3.0	345.0	10.0	359.3
2.	Industry (manufacturing, public utilities, construction)	5.0	22.8	92.7	12.0	132.5
3.	Transport, communications and distribution ..	1.0	13.5	19.0	41.7	75.2
4.	General administration, social services, education, banking, others				25.1	25.1
	GRAND TOTAL ..	7.3	39.3	456.7	88.8	592.1

The most important limitation of this Table is the fact that it refers only to additional labour requirements and does not include replacements. It would not be unreasonable to assume that replacement needs would amount to some 25 per cent of the labour force at the beginning of the Plan period.

The second observation which must be made on this Table is that the 345,000 additional semi-skilled and unskilled labour required for modern agriculture consists of 98,000 permanent workers and 247,000 workers who will mostly be employed on a seasonal basis.

As can be seen from the Table it is expected that some 47,000 additional skilled workers of various levels would be required in the Plan period, apart from the clerical, administrative and commercial labour. Replacement requirements for skilled workers might perhaps amount to a further 12,000 persons. In comparing the possible supply of skilled labour with this demand, it should first of all be observed that such labour will become available from several sources, *viz.* pre-employment and post-employment training. (Pre-employment education refers to formal schooling taken before the individual starts work while post-employment training refers to instruction offered to upgrade persons who are already employed.)

A provisional impression of the foreseen capacity of pre-employment training has been given in the Table below. The figures in this Table can be considered more or less as a maximum since they are based on the capacity of all the educational institutions as well as on the plans of the Ministry of Education to expand that capacity in the Plan period.

TABLE 31

ESTIMATED NUMBER OF TECHNICIANS, SPECIALISTS AND CRAFTSMEN BECOMING AVAILABLE FOR EMPLOYMENT FROM PRE-EMPLOYMENT TRAINING IN THE PLAN PERIOD

LEVEL AND SOURCE	IN 1961/62	IN 1970/71	WHOLE PLAN PERIOD
1. *Education at second level :*			
(a) Intermediate	52	330	1873
(b) Post	76	210	1437
TOTAL (a) and (b)	128	540	3310
2. *Education at third level :*			
(a) K.T.I., Senior Trade School, etc.	20	500	2145
(b) Shambat Agricultural Institute ..	30	50	100
(c) University of Khartoum			
Engineering	10	95	597
Agriculture	10	30	208
Sub Totals (2 a + b + c)			
Engineering	30	595	2742
Agriculture	40	80	608
TOTAL (2 a + b + c)	85	675	3350

As regards the second level of technical education, demand has been roughly estimated to consist of 39,300 additional workers plus some 10,000 as replacement or 40,300 workers in all. This number would include some 22,000 car, lorry and tractor drivers, a large majority of whom still probably receive their training on the job. The remaining requirement of technically skilled workers is thus 27,300 and it may be said that the estimate of 3,310 workers becoming available from pre-employment training will cover some 12 per cent of the requirements during the Plan period. It is expected that the remainder will be partly made up by special post-employment courses. Examples of the latter are the courses given by the vocational training centre and by the many in-service training schools run by the different ministries, departments and public corporations. The Department of Labour development plan provides for the establishment of four new vocational training centres and it is foreseen that an output of over 9,000 craftsmen in the Plan period will be available from this source. As for the in-service training schools at the second level, it is a feature of many plans by the various governmental units that they contain provisions for training facilities for the require skilled manpower. In addition to this there will remain an unvaoidable necessity for on-the-job training, both in the public and private sectors.

If we look at the supply and demand at the third level of technical education (*i.e.* mechanical engineers, architects, agriculturists and other specialists) it follows from the above Table that pre-employment training could produce rather more than one third of the additional and replacement requirements of the agricultural sector, which are roughly estimated to total some 2,000 persons. It must be stressed, however, that in this number are included high level managerial workers who need not have in all cases a specialised agricultural education. The imbalance between supply and demand will be redressed by various institutes for higher training other than the University and Shambat Institute, *e.g.* the new Forest Rangers College, etc. In addition, the supply of agriculturists may also be increased by studies abroad and by temporarily engaging expatriate specialists. It is worth mentioning that 15 Sudanese students were studying agriculture at foreign Universities in 1960/61 and it is expected that this number will increase during the Plan period. The number of Government officials on courses abroad, for instance, doubled between 1960/61 and 1962/63. On the other hand, it is to be mentioned that the Institutes of higher agricultural education in Sudan recently suffered from too low an intake of students in relation to the capacity of those institutes. The effect of this will be a decrease in the number of agricultural graduates during the first years of the Plan period.

The supply of engineers from the University of Khartoum and Khartoum Technical Institute is expected to be some 2,742 graduates at the most during the Plan period. The additional and replacement demand in industry, transport and communications is estimated at some 7,000 though this number again includes higher level managerial workers who need not in all cases have full professional qualifications. The comparison between supply and demand for engineers (supply would seem to be some 40 per cent of the number needed) seems to be somewhat more favourable than for agriculture. However, in industry and transport too recourse will have to be made to courses abroad and to a limited use of foreign experts. The number of Sudanese studying engineering abroad was in 1960/61 150 persons and this number might well go up during the Plan period.

Finally, it should be noted that in the foregoing Table, the additional manpower requirements for clerical and commercial workers is put at 80,000. It can be assumed that in the Plan period—as in the recent past—supply of this type of labour will be adequate to meet the demand.

The Fifth Objective: The Maintenance of a Relatively Stable Price Level:

The economy of the Sudan has too many links with the rest of the world to be isolated from changes in international price levels. From the point of view of our country such price changes must be considered as given.

On the other hand, however, the Plan should be so framed that internal inflationary pressures which would disturb the price level unnecessarily are avoided. This requires that national spending should be well balanced with national means (including any foreign assistance) throughout the Plan period. It will be seen from the following table that this requirement has been duly taken into consideration:

TABLE 32

NATIONAL MEANS AND THEIR USE

(LS. Million ; Whole Economy)

	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	Whole Period
1. Gross domestic product (at market prices)	423.1	431.7	447.4	467.8	489.2	512.2	540.6	570.7	602.7	637.2	5,122.6
2. Net inflow of foreign resources ..	17.1	19.2	18.6	16.3	14.4	12.6	12.2	11.6	11.2	10.3	143.5
3. Drawings on foreign exchange reserves	6.0	—	—	—	—	—	—	—	—	—	6.0
TOTAL MEANS	446.2	450.9	466.0	484.1	503.6	524.8	552.8	582.3	613.9	647.5	5,272.1
4. Gross fixed investment	48.3	60.7	53.9	53.0	52.5	53.0	56.6	59.5	62.4	65.5	565.4
5. Plus increase (+) or decrease (−) in cotton stocks (2)	22.0	8.1	—	—	—	—	—	—	—	—	13.9
6. Consumption :											
(a) Private (1)	338.1	354.3	365.9	382.7	400.3	418.5	440.0	464.0	489.6	517.1	4,170.5
(b) Public	37.8	44.0	46.2	48.4	50.8	53.3	56.2	58.8	61.9	64.9	522.3
TOTAL USES	446.2	450.9	466.0	484.1	503.6	524.8	552.8	582.3	613.9	647.5	5,272.1

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(1) Includes all African style buildings.

(2) As to other stocks statistical information was almost completely lacking for past years ; no separate assumption could therefore reasonably be made for the Plan period ; line 4 in the table will however cover the need of technical stocks as part of working capital with many new projects.

The upper part of the table shows the total value of all goods and services that are expected to become available to the Nation in any given year (1963/64–1970/71 on trend basis). This total value consists not only of the value of goods and services produced in the Country (gross domestic product at market prices) but also includes the net excess of imports of goods and services over corresponding exports. This excess is equal to the deficit in the Current Account of the Balance of Payments which has to be financed by foreign capital or by use of own reserves. The second and the third line of the above table represents therefore the excess of imports over exports.

The lower part of the table shows that the planned volume of investment (including any changes in stocks) and the prospective growth in consumption do not exceed the total value of goods and services shown in the upper part as becoming available for national use. On this basis, it is clear that the first fundamental requirement for internal financial stability can be achieved within the framework of the Plan now proposed. This is not to say that there is no possibility of tensions between supply and demand in separate markets.

Thus, the increased level of investment expenditure will, of course strongly raise the demand for building and civil engineering works and for plant, machinery and equipment of all kinds. Hitherto such equipment (machinery, tractors, lorries, electrical installations, railway equipment, etc.) was wholly imported and it is not foreseen that in this Plan period local production will replace such imports to any appreciable extent. This has therefore been taken into account in the import projection. The Plan anticipates that this increased demand for equipment will be fully met by an elastic supply from abroad.

The general increase in activity of the building industry may raise more difficult problems. The plan would call for an increase in the annual output of European-style building and civil engineering for investment from roughly LS. 24 million at the beginning of the Plan period to some LS. 40 million at the end of the period or about 67 per cent increase. While such a percentage increase does not necessarily seem excessive in view of the attainment of a similar 60 per cent increase over a much shorter period, *viz.* from 1955/5 to 1960/61, it is also true that the latter growth was only achieved at the cost of a marked upward pressure on the prices of some local building materials and on the wages of various categories of labour in this industry. Naturally, this applied especially to those materials and skills the supply of which cannot be increased very quickly, *e.g.* where imports were not feasible (bricks, etc.) or where transport difficulties to the sites, traditional ways of local manufacture and the lack of sufficient training facilities hampered expansion. In order to mitigate similar tensions in the Plan period particular attention has been given therefore in the Plan to these potential bottlenecks. It is worth mentioning in this connection that some of the major civil engineering and building projects have already been awarded to foreign contractors *e.g.* Roseires Dam, Khashm El Girba Dam, Guneid Sugar Factory, Sennar Hydro-electric Power Station and Halfa Resettlement housing. This will help greatly to alleviate the imbalance between supply and demand in the building industry in those earlier years.

Another potential focus for imbalance lies of course on the market for consumer goods. Private consumption alone is shown in the Table above as rising by 53 per cent over the Plan period. To meet this, the projections of imports of consumer goods have been derived from the estimated growth trend of both private and public consumption, after taking into account the expected import substitution. In other words, allowance has been made in the projection of the foreign exchange requirements of the Plan for the impact of the increase of consumer demand for imports. In this connection, it was assumed that the present liberal import policy would be continued save for restrictions imposed to protect domestic industries. This is not to say however that Government should not take appropriate measures to discourage imports of consumer goods should the actual value of such imports exceed considerably their planned level. The Plan also envisages the railway investments which will be needed to improve the efficiency and speed of the flow of both imports and exports to and from the port and the main inland centres.

More conceivable, however, are likely tensions between the supply and demand of some domestically produced consumer goods. Because of statistical deficiencies it is very difficult to form a complete and reliable picture regarding this matter and moreover it must be borne in mind that not all price increases occurring during a phase of rapid development must necessarily be an expression of prevailing inflationary tendencies. However, there are indications that in the more recent past the supply, notably of horticultural and livestock products did not keep pace with the increase in demand so that there was a tendency for their prices to rise. It is probable that the supply of these goods was not only hampered by a lagging physical production but also by transportation and distribution facilities (e.g. fruits in the South) inferior quality (e.g. samn as substitute for butter), lack of processing and storage facilities. It is, therefore, important to note that various investments have been included in the plan in order to improve both physical production and marketing of this type of goods.

Apart from such partial tensions which might occur (notwithstanding a fundamental overall equality between national means and their uses) consideration must also be given to the possibility even within the framework of the present Plan, of disturbances in the overall equality of aggregate supply and demand. For example, an excessive increase in Commercial Bank advances to the private sector, or even simply large surpluses in foreign trade in a very favourable year could easily lead to a situation where the monetary demand would outstrip the available supply of goods and services. Even if such a situation subsequently solved itself through an expansion in imports, some damaging and persistent upward pressures on the domestic price level might have occurred in the meantime. In the case of excessive bank advances, an additional burden could also be imposed on the balance of payments. It is therefore of great importance that the volume of bank credit be closely watched and that if necessary the authorities should be prepared to take measure for quantitative and or qualitative restrictions. The structure of the banking system and the position of the Bank of Sudan therein make the adoption of such measures quite possible. Naturally they should not be such as to endanger the efficient lubrication of economic activity in the private sector by the banking mechanism. Equally important may be measures designed to check and spread over a longer period the immediate impact on the disposable personal incomes of any abnormally high export proceeds. The fact that a large portion of Sudan's exports is being produced by Government corporations should in such a situation, facilitate some phasing of payments in case of cotton. Not less important for the maintenance of monetary stability under such, often short lived boom conditions is the requirement that the levels of current and capital expenditure by the public sector will remain within the limits decided upon in the Plan.

SECTION 2

THE INVESTMENT

In his broadcast speech on the occasion of the approval of the Ten Year Plan the Minister of Finance and Economics stated " that the magnitude of investment during the period will be about L.S. 512 million of which L.S. 285 million will be provided in the Development Budget for major schemes included in the Plan and L.S. 52 million will be for replacements, betterments and minor projects which are normally financed in Chapter III of the ordinary Budget. The remaining L.S. 175 million represents the estimated investments of the private sector. It is possible that this latter sum might be exceeded." Further analysis showed that the amount of L.S. 175 million for private expansion investments could indeed be exceeded by some L.S. 12 million to L.S. 187 million.

Thus the overall figure for expansion investments is L.S. 472 million. To this estimate of net investment should be added of course the replacement investments, *viz.* L.S. 52 million for the public sector and L.S. 41 million for the private sector. Total gross fixed investment envisaged for the plan period as a whole amounts therefore to L.S. 565 million, made up of L.S. 337 million public investment and L.S. 228 million private investment.

With the help of detailed capital output ratios derived from project analysis and from past experience it has been assessed that this volume would be sufficient to fulfil the objectives of the plan and to lay a firm foundation for future economic growth. At the same time, this level of investment stands in reasonable proportion to the estimates of internal resources though it would call for considerable but not an unrealistic additional amount of capital to be obtained from abroad. In the event that the actual resources in the Plan period could be raised to a higher level, the possibility should not be excluded of increasing the above amount of L.S. 565 million through bringing in some projects from the additional programme of public investment that is now dependent on the availability of more resources (see Section 4).

This magnitude of investments will place high demands on the organizational, technical and administrative capacity of the Government and the country but it is foreseen that those demands could probably be met. In the first place the Sudan has already accumulated considerable experience in the organization and execution of investment projects of the type and size that loom largely in the present Plan. Moreover, arrangements for the execution of major projects embodied in the Plan have already been made. It should also be noted that the Plan sufficiently caters for the current expenditure which might be involved in the expansion of the administrative and organizational apparatus of the Government.

As already stated, the total of L.S. 565 million modern investment is expected to be sponsored as to approximately 40 per cent (L.S. 228 million) by the private sector and to 60 per cent or L.S. 337 million by the public sector. The latter comprises Central, Provincial and Local Governments as well as Public Corporations. The amount of public investment is in essence a reconciliation between the heavy investment proposals submitted by the various Ministries, Departments and other entities and the possibilities for raising internal and external resources (see Section 3 of this Chapter). The amount of private investment is in line with the estimates of the growth of income in the private sector and the percentages it used, in the recent past, to save and invest therefrom. In addition, a modest inflow of private capital from abroad has been assumed.

There is no doubt that the dominant role of Government in this Plan period is necessary when so many investments of a basic character are required to pave the way for later economic development. Important examples are the two large dams. These are responsible for the heavy share of the public sector even in agricultural investments.

The planned trend in the yearly level of modern type investment is as follows :

TABLE 33

MODERN GROSS FIXED INVESTMENT IN PLAN PERIOD

(*L.S. Million*)

	60/61	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	10-Years
Public Sector (*)	23.6	29.6	41.7	37.8	34.9	32.0	30.2	30.9	31.6	32.3	33.0	337.0
Private Sector	17.1	18.7	[illegible]	16.1	18.1	20.5	22.8	25.7	27.9	30.1	32.5	228.4
TOTAL	40.7	48.3	60.7	53.9	53.0	52.5	53.0	56.6	59.5	62.4	65.5	565.4

* Based on foreseen actualization.

As already emphasized in Section 1 of this Chapter, it is the rapid increase in investment in the modern sector of the economy which is mainly responsible for accelerating the growth of the output in the economy as a whole. The higher this investment in relation to the gross domestic product of the whole economy the speedier may be the growth of that product. Thus it is important to note that taken over the Plan period as a whole, this relation (*i.e.* of investment to gross domestic product at market prices) will be more favourable, *viz.* 11.4 per cent, than it was, as an average, during the last 5 years *viz.* 6.5 per cent.

A striking feature of the above Table is the peak in investments in the first four years. This is due to the fact that in those years the execution of a number of large projects coincides and moreover Railway investment will also be above average. Such large investments must be undertaken in the early stages of the Plan in order to facilitate subsequent expansion in output and exports. This investment peak in the earlier years will necessitate a relatively larger additional influx of foreign capital and foreign contracting capacity than in the latter part of the period. In the next section of this Chapter it will be shown that although public foreign capital requirements are very high indeed, they will be falling towards the end of the period, even though the trend in public investment as a whole will be continuously increasing from the fifth year onwards. It is clear that if more internal public resources can be made available for the additional investment programme, this trend will be even more marked.

The sharp rise in private investment shown in the above Table is based on the expectation of a considerable increase in private incomes and in the propensity to save. This will be discussed further in section 5.

The following Table shows how both private and public investments are distributed over broad categories of economic and social activity :

TABLE 34

OTAL GROSS FIXED INVESTMENT (MODERN TYPE) IN 1961/62 – 1970/71 ROUGHLY CLASSIFIED ACCORDING TO BROAD ECONOMIC SECTORS AND SPONSORS

SECTORS	LS. Million			In % of total
	Private	Public	Total	
Agriculture, including livestock, fishery, forestry	30.0	90.1	120.1	21
Industry, including public utilities and building and civil engineering—industry and mining	65.0	41.9	106.9	19
Transport distribution	32.0	63.0	95.0	17
Social services, including housing, health care, education and general administration, others*	60.0	90.0	150.0	27
Total expansion investment ..	187.0	285.0	472.0	84
Replacement investment	41.4	52.0	93.4	16
Total gross fixed investment ..	228.4	337.0	565.4	100

* Mainly housing but excluding African style housing.

The Table shows gross investments and an allowance must be made, therefore, for replacement investments. On basis of various statistical indications for the past, the latter have roughly been assessed at 18 per cent of gross investment. Thus calculated, replacement investment for the public sector would amount to LS. 60.7 million instead of LS. 52.0 million as given in the Table. This LS. 52.0 million represents replacements and minor capital expenditure items which are normally brought under "Chapter III" of the ordinary Budgets of Central and Local Government and of some Government corporations. The balance of LS. 9 million consists of replacements which are included in the new or expansion investments, because they are likely to enlarge production even though they consist technically in the replacement of obsolete capital goods (*e.g.* the replacement of steam locomotives by diesels and other various Railway investments, substitution of Dakota by Fokker Aircraft, part of the new excavating equipment for haffirs and dams and part of the new machinery of the Mobile Plant Depot). It is, no doubt, also probable that some of the LS. 41.4 million of replacement investments in the private sector will be of a similar character but it is statistically impossible to separate them.

Turning to the distribution of total "expansion" investment (LS. 472.0 million) between the four broad categories of economic and socio-economic activity, given in the Table, it will be clear that this is largely dictated by the objectives of the Plan. Thus the availability of resources (see Section 3 of this Chapter) and the fulfilment of the fifth objective of the Plan (the avoidance of unhealthy inflationary development) not merely set limits to the investment total but also have implications for the distribution of this total. The larger the share of rapidly and directly productive investmen for instance, the smaller the likelihood of inflationary pressures. The attainment of the first objective (a 65 per cent growth of the gross domestic product also limits the amounts that can be allocated to the social services, particularl in directions which will have a small or negligible effect on the growth of th gross domestic product in the Plan period itself (even though their effect afte a longer period may be considerable). On the other hand, the fourth objectiv (improvement of social conditions) limits the amounts that can be allocate to directly productive investments. As regards the first objective (growt of gross domestic product) studies were undertaken both for the econom as a whole, and for separate projects regarding the relationship (the so calle capital output ratio) between investments and the ensuing increases i production and in national income. During these studies the importanc of investments in the diversification of the economy (second objective) expor promotion and import substitution (third objective) was closely considere Weighing the results of these studies against various possible levels o "social" investments and taking due notice of course of the limits set b resources and by the fifth objective, the broad distribution of investment shown in the above Table was arrived at.

Considering now the investment patterns in the Table for the privat sector and for the public sector separately, it seems reasonable to assume tha the distribution of private investment will be broadly in line with trends in the recent past. Thus the pattern for the Plan period envisages a furthe shift in relative importance from Category 4 (mainly housing) to the othe categories — notably in 2 and 3 (industry and transport). It has also been noted in the Sudan that private savings appear to respond to a certain extent to the opportunities for investments rather than the other way round. Thus the projected private investment—both in total and in its distribution over categories of economic activity is likely to reflect the opportunities and inducements resulting from Government activities and policies. Various projects in the agricultural sector, *e.g.* the enormous increase of available stored water from the building of the large dams, projects for the expansion of American Cotton growing, for rice and coffee cultivation, etc. will provide ample opportunities for private agricultural investments. In the industrial sphere, further application of the Approved Industries Act combined with the influence of the newly established Industrial Bank (the plan contains further capital provisions for this Bank), should stimulate private industrial investment. In line with the experience in the most recent years it may be assumed furthermore that the relative significance of private investment in distribution and transport (trucks, etc.) would also be greater than it was on an average in the whole period 1955 56—1960 61. However, despite these developments in the pattern of private investment, as shown in the preceding Table, it is still anticipated that housing will constitute a major part of total private investment.

Turning attention now to the pattern of public investment in the preceding table, it has been expained already that LS. 52.0 million was earmarked for "replacements and minor capital expediture" which are normally included in Chapter III of the Budgets of Central and Local Government and some of the Government Entities. This amount will not therefore be part of the normal "Development Budget". It is the balance remaining for "expansion" investments *viz.* : LS. 285 million (LS. 337 million minus LS.52

million) therefore which corresponds to the total 10 years allocation as mentioned in the Development Budget 1962/63, page 7. Notwithstanding this correspondence for the period as a whole it must be pointed out that the year-to-year investment figures for the public sector mentioned in this plan, besides including Chapter III—type investment, are meant to estimate. As for the past years when expenditure actually incurred in a given year often was at a level substantially below the amounts budgetted for, it will be understandable that these year-to-year investment figures in this Plan will normally lie below the totals of the Annual Development Budgets, particularly since the latter often include considerable amounts of revotes.

In distributing the amount of LS. 285 million over the various economic and social sectors, the general approach has been outlined earlier in this section. In selecting projects from the Departmental submissions account had to be taken of course of the various large projects which had already been started or approved at the beginning of the Plan period, notably Roseires and Khashm El Girba Dams and consequent irrigation works, the fourth phase of the Managil Extension, the Guneid Sugar Factory, the Sennar Hydro-electric Power Works and some other smaller projects. A detailed analysis by sectors and projects of the proposed investments in the public sector which resulted from this process of examination and selection is given in the following chapters.

SECTION 3

FINANCIAL RESOURCES

The total value of investments is estimated to be financed to the extent of LS. 415.9 million by domestic savings and to the extent of LS. 149.5 million from financial assistance from abroad. The LS. 415.9 million domestic savings would consist of LS. 219.7 million public savings and LS. 196.2 million private savings. The Table below shows the annual trend :—

TABLE 35

FINANCING OF GROSS FIXED INVESTMENT

(*In LS. Million*)

	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	10 years
Public Savings (*)	16.1	26.0	20.7	20.5	20.1	20.3	21.6	23.3	24.6	26.5	219.7
Private Savings (**)	9.1	15.5	14.6	16.2	18.0	20.1	22.8	24.6	26.6	28.7	196.2
External Sources (***)	23.1	19.2	18.6	16.3	14.4	12.6	12.2	11.6	11.2	10.3	149.5
TOTAL	48.3	60.7	53.9	53.0	52.5	53.0	56.6	59.5	62.4	65.5	565.4

(*) " Public " includes Central Government and all Government entities with separate budgets.

(**) Modern part of economy.

(***) Net of amounts equal to repayments but including a run-down of LS. 6 million in foreign exchange reserves.

The estimated trend of forthcoming private savings is based on a certain statistically established relationship (the propensity to save) between total income of the private sector and its savings in the past period. The average value of the ratio of savings to private income was above 9 per cent in the period 1955/56—1960/61 in the *modern part* of the economy, or above 4 per cent for the economy as a whole. It should be noted that those savings include depreciation allowances and company savings. This ratio fluctuated considerably of course from year to year, mainly due to fluctuations in output and in stocks held by the private sector. At the beginning of the Plan period, this ratio (or propensity to save) has been conservatively estimated at 8 per cent but subsequently a gradual increase to 10 per cent has been assumed. Such an expectation is on the one hand based on the intention of the Government to stimulate private savings by several measures. There are no doubt many untapped possibilities in this respect such as social insurance schemes, raising of interest rates for postal savings, the creation of a capital market, etc. On the other hand, it has already been pointed out in the preceding section of this Chapter that there is a tendency of private savings to adjust themselves to a certain extent to the presence of profitable investment opportunities and that the Government will greatly promote such opportunities through the Ten Year Plan.

Public savings are expected to originate with Central Government and with Government Corporations with separate budgets as follows —

TABLE 36

PROJECTED TREND OF PUBLIC SAVINGS (1)

(*In LS. Millions*)

	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	10 years
1. Central Government (2) ..	17.3	21.7	13.9	13.3	12.4	11.9	12.6	13.6	14.4	15.7	146.8
2. Government entities with separate budgets (3)	− 1.2	+ 4.3	6.8	7.2	7.7	8.4	9.0	9.7	10.2	10.8	72.9
Total public savings ..	16.1	26.0	20.7	20.5	20.1	20.3	21.6	23.3	24.6	26.5	219.7

(1) **On a gross basis, deviation from trend level in 1961/62 and 1962/63 is mainly due to the cotton situation; this may of course also cause considerable fluctuations around trend level in subsequent years.**

(2) **These savings are defined in the pure economic sense of the word; differences between these figures and the surpluses on Central Budget are explained in text; see also next table for comparable Central Budget surpluses.**

(3) **Almost entirely savings by Sudan Railways and Central Electricity and Water Administration; in the first 2 years, however, these savings are largely offset by estimated dissavings by Cotton Boards.**

It might first of all be observed that no savings of Provincial Councils l Local Governments have been included in this table. It is true of course at these bodies do have investment. However, to the extent that these estments—of an expansionary nature—are financed from the Central velopment Budget and to the extent that they exist in Chapter III— e investments—it may be considered that these are paid for from the normal ancial transfers by Central Government which are included in Current ntral Budget expenditure.

The most important component of the savings of Government entities th separate budgets (Cf. line 2 in above table) are those of the Sudan Rail- ays. Estimates of the Railway's operating revenues and expenditures ave been based on the estimated growth of traffic taking into account the anned expansion of the economy. On this assumption it has been timated that the total gross current surplus of the Railways in the whole lan period could amount to over LS. 50 million (including provision for payment of debt) as it is considered in this plan that all public foreign debt payments will be compensated for by additional foreign loans and grants; is is not to say of course that such loans and grants would have to obtained for this specific purpose; (see further on in this section). onsiderable savings are expected to be forthcoming from the Central Electri- ty and Water Administration even without resort to increases in tariffs.

The estimated savings of the public corporations are absolutely necessary 1 the whole financial set-up of the plan. It should also be emphasized that he ability of these entities with separate budgets to produce the expected urpluses implies a strict control over their current expenditure and that uch control must continue even when the respective surpluses will be no nore needed to cover the investment plans of the entities concerned but vould lead to the transfer of surplus funds to the Central Government.

The savings of Central Government as estimated in line I of the above Table, are savings in the pure economic sense of the word. They are therefore not the same as the published surpluses in the Central Budget; if fact they are usually higher as can be seen from a comparison between line 3 and the bottom line of next table. This table also shows in the lines 4 a, b and c how this difference can be explained.

TABLE 37

PROJECTED SURPLUSES IN CENTRAL BUDGET

(*L.S. Millions*)

	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	10 years
1. REVENUE (*)											
(a) *Indirect:*											
Import duties	25.1	27.7	25.8	25.6	25.4	25.7	26.8	27.7	28.7	30.1	
Other (**)	10.6	11.3	12.1	12.9	13.7	14.4	15.5	16.7	18.0	19.4	
(b) *Direct and Other:*											
Participation in agricultural undertakings ..	8.1	12.9	8.8	9.2	9.2	9.4	9.8	10.3	10.8	11.2	
Export duties and royalties	6.1	7.3	6.6	6.8	6.9	7.1	7.3	7.7	8.1	8.5	
Business profits tax ..	1.5	1.8	1.9	2.1	2.3	2.5	2.7	3.0	3.3	3.6	
Fees, charges, reimbursements, others ..	16.8	19.0	19.8	20.8	21.8	22.9	24.1	25.3	26.5	27.9	
SUB-TOTAL A + B ..	68.2	80.0	75.0	77.4	79.3	82.0	86.2	90.7	95.4	100.7	834.9
(c) *Less:* Revenue directed to Provincial Councils (***)	(9.6)	10.0	10.5	11.0	11.6	12.2	12.8	13.4	14.1	14.8	120.0
TOTAL CENTRAL BUDGET REVENUE	(58.6)	70.0	64.5	66.4	67.7	69.8	73.4	77.3	81.3	85.9	714.9
2. EXPENDITURE: Central Budget Forecast (excluding provinces) ..	(43.5)	52.2	54.8	57.5	60.4	63.4	66.7	69.9	73.4	77.1	618.9
3. Projected Central Budget Surpluses (1—2)	(15.1)	17.8	9.7	8.9	7.3	6.4	6.7	7.4	7.9	8.8	96.0

	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	10 years
4. **RECONCILIATION OF CENTRAL BUDGET SURPLUSES WITH CENTRAL GOVERNMENT SAVINGS AS GIVEN IN PREVIOUS TABLE (****)**											
(a) Chapter III and minor capital works included in line 2 above	+ 3.0	+ 3.2	+ 3.4	+ 3.6	+ 3.8	+ 4.0	+ 4.2	+ 4.4	+ 4.6	+ 4.8	
(b) Repayments included in line 2 above	+ 1.8	+ 3.3	+ 3.5	+ 3.7	+ 3.9	+ 4.1	+ 4.3	+ 4.5	+ 4.7	+ 4.9	
(c) Current expenditure included in the development budget and others.. ..	− 2.6	− 2.6	− 2.7	− 2.9	− 2.6	− 2.6	− 2.6	− 2.7	− 2.8	− 2.8	
5. GOVERNMENT SAVINGS (3—4 a, b, c)	17.3	21.7	13.9	13.3	12.4	11.9	12.6	13.6	14.4	15.7	146.8

(*) Revenue figures are trend figures; actual performance may of course fluctuate considerably around trends due to dependence of various revenue categories on fluctuation in export, stocks and imports; for the first two years estimates of such and similar factors have been taken into account in the Table.

(**) "Other Direct Taxes" include consumption and excise duties and sugar monopoly profits.

(***) "Revenue Directed to Provincial Councils" does not inlcude grants and is for 1962/63 equal to the amount estimated by Central Government and mentioned on page 2 of the Memorandum of the Budget Estimates; in 1961/62 the new regulations were only particularly applied but for the sake of comparison an imputed figure is mentioned between parenthesis; for the years after 1962/63 revenue was put equal to expenditure and thus its increase is limited to 5% per annum; should provincial revenue increase by more than that, ensuing surpluses must be considered as part of the surpluses in line 3 of the table and thus should become available for financing the public investment programme.

(****) 4. (a) "Chapter III and Minor Capital Works" may be added to Central Budget surpluses because the public investment in this Plan of LS. 337 million gross includes Chapter III expenditure in so far as this expenditure is of a capital nature.

4. (b) "Debt Repayments" are in the Central Budget paid out of current revenue though they are of course not part of current expenditure; thus they are to be added to the Central Budget surpluses in order to arrive at savings in the economic sense; conforming to this treatment it has been assumed throughout the Plan that repayments would be covered by an equivalent inflow of official foreign capital.

4. (c) "Current Expenditure Included in the Development Budget, etc." comprises expenditure against the Development Budget for general surveys, research and investigational type of projects, this is not investment as defined for the purposes of the Plan and should, by economic standards, be deducted from the Central Budget surplus.

The estimate of future Central Budget revenue is based throughout the Plan period on the present levels of taxes and tariffs. Thus estimated increases in revenue are expected to result from the planned increase of production, exports, imports, household consumption, etc. It should be observed that these estimates imply that Government would tap off from total national income a somewhat smaller part at the end of the Plan period than at present. The main reason for this is that Government revenue relies rather heavily on import duties and that imports will not rise to the same extent as national income owing to import substitution.

This fact is well recognised and consideration is now being given to ways and means of increasing public resources during the Plan period in order to maintain the present share of public revenue in a national income. If this was done, it should be possible to raise the level of public investment still further by including the additional programme which is discussed in the last section of this Chapter.

On the expenditure side it has been assumed that the growth of annually recurrent expenditure in the Central Budget will, apart from a sharp rise in the second year of the Plan, be limited to 5 per cent per annum throughout the Plan period. This is one of the key assumptions underlying the Plan for without such control on current expenditure it will not be possible at all to achieve the estimate of Government surpluses which are required for the planned level of public investment. This stringent control on the growth of recurrent expenditure applies not only to Central Government but also to Provincial and Local Councils. It is considered, however, that this average annual growth of 5 per cent from 1962/63 onward will leave sufficient scope for both the "national" growth of current expenditure and for additional current expenditure consequent on the development programme (*e.g.* running costs of finished investment projects). It is acknowledged that the rise was more than on an average 5 per cent per year in the recent past. Thus the target of a limited 5 per cent growth p.a. from 1962/63 onward it based on the deliberate intention of Government to curb the previously prevailing rate of growth of recurrent expenditure. However, the deliberate policy to limit the growth of non-development expenditure, is of course equally applicable to many components of extra-budgetary expenditure, in particular it is the intention of Government to keep a close watch on its lending activities.

However despite these efforts it can be seen from the following table that there will be gaps between savings and investment both in the private and public sectors; these will have to be covered by an inflow of foreign capital.

TABLE 38

FINANCING GROSS FIXED INVESTMENT (*)

(*LS. Millions*)

	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	Total
I. Public Sector											
Investment (**)	29.6	44.7	37.8	34.9	32.0	30.2	30.9	31.6	32.3	33.0	337.0
Savings	16.1	26.0	20.7	20.5	20.1	20.3	21.6	23.3	24.6	26.5	219.7
External sources (***) ..	13.5	18.7	17.1	14.4	11.9	9.9	9.3	8.3	7.7	6.5	117.3
II. Private Sector:											
Investment	18.7	16.0	16.1	18.1	20.5	22.8	25.7	27.9	30.1	32.5	228.4
Savings	9.1	15.5	14.6	16.2	18.0	20.1	22.8	24.6	26.6	28.7	196.2
External sources (****) ..	9.6	0.5	1.5	1.9	2.5	2.7	2.9	3.3	3.5	3.8	32.2

(*) Modern type.

(**) Includes LS. 52 million Chapter III type capital expenditure.

(***) Does not include provisions for repayment of foreign debt (see text).

(****) This amount in 1961/62 does not wholly consist of the inflow of private foreign capital because the deficit of private spending over private income resulted in that year in a drawing on foreign exchange reserves, the same to a far smaller extent may also hold true for the public sector in 1962/63 whereas for 1961/62 a reverse situation might have occurred in that sector.

It can be observed from the table that the required inflow of foreign capital required for the public sector far surpasses that for the private sector. The required inflow of private foreign capital would only amount to LS. 32.2 million, or 14 per cent of total foreseen investments in that sector, whereas the inflow for the public sector would have to amount to LS. 117.3 million on top of the latter amount a further LS. 54 million external resources (equal to the repayments of foreign debt) will have to be found for the public sector.

In the first Chapter it was pointed out that the private long term capital obtained by private business in Sudan from abroad was very small in the past years. Recently, however, some Sudanese enterprises—a good example is one of the new textile factories—obtained loans and or participation in their equity capital and the possibility should not be dismissed that this will become a regular feature in the Plan period. The activities of the Industrial Bank which is developing its contacts abroad may also stimulate such developments. With this in mind it certainly seems justified to assume a trend for the Plan period rising from LS. 1 million in the beginning to some LS. 4 million at the end. This assumption of gradual growth in the inflow of private long term capital does not exclude the possibility that on the one hand in any given year actual long term capital imports may deviate from the trend or that a rather erratic behaviour might be experienced with regard to short term capital inflows. The deviations for the first two years of the Plan period have been explained in the relevant footnote to previous table.

Reviewing now the required foreign capital on public account it will be observed from the table that these are heaviest in the first half of the period (LS. 75 million against LS. 42 million). This situation corresponds to the investment peak in that period which is of course not matched by a similar movement in domestic public savings. After the peak, however, the share of foreign capital in public investment would become much more moderate though total public investment is expanding.

It should be emphasised that public savings as they are usually defined and as they appear in the above Table, consist of the excess of current income over current consumption. The latter comprises expenditure on goods and services for current purposes and does not therefore include provision for the repayment of *capital* in foreign debts. This (allowing for commitments in respect of external debts incurred prior to the Plan and those likely to arise from overseas loans incurred during the Plan) is estimated to amount to LS. 54.1 million over the Plan period. Thus the volume of public savings actually available for new investment as shown in the preceding Table must be reduced by that amount, resulting in a corresponding increase in the figure for the external capital required on official account from LS. 117.3 million to LS. 171.4 million. The position with respect to *interest* payments is rather different. Their counter-value in Sudanese currency has to be paid for out of current resources. As can be seen from the table below such payments will constitute a considerable amount toward the end of the period and will therefore to the same degree limit the ability of the Government to use its planned current expenditure for other purposes.

The following table gives particulars of how these foreign funds might be obtained and on their influence on interest and amortization payments :—

OFFICIAL CAPITAL INFLOW (1) INTEREST AND REPAYMENTS (*LS. Million*)

	61/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71	10 years
A. CAPITAL											
1. Capital (to be) obtained from abroad	17.9	22.9	22.6	18.9	16.7	14.3	14.3	14.4	14.8	14.4	171.2
Of which :											
2. Loans already ascertained ..	10.2	13.4	8.7	5.5	4.5	4.5	4.5	2.6	1.6	0.8	55.7
3. Grants already ascertained and Wadi Halfa Compensation	7.7	7.6	3.6	0.5	0.4	0.2	0.2	0.2	0.2	0.2	20.8
4. Capital still required ..	—	1.9	10.3	12.9	11.8	9.6	9.6	11.6	13.6	13.4	94.7
B. INTEREST											
5. Receipts	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	15.0
6. Known payment on 2. above and on loans still outstanding at the end of 1960/61 (2)	— 0.9	— 1.0	— 1.2	— 1.2	— 1.1	— 1.0	— 0.9	— 1.3	— 1.4	— 1.4	11.4
7. Estimated interest payment on 4 above (2) ..	—	—	— 0.3	— 0.9	— 1.4	— 2.0	— 2.3	— 2.7	— 3.0	— 3.3	15.9
8. Excess of receipts over payments (+)	0.6	0.5	—	— 0.6	— 1.0	— 1.5	— 1.[illegible]	— 2.5	— 2.9	— 3.2	12.3
C. REPAYMENT											
9. Known repayment on (2) above and on loans still outstanding at the end of 1960/61 (2)	— 3.8	— 5.0	— 5.1	— 3.3	— 2.7	— 1.7	— 1.7	— 2.2	— 2.5	— 2.5	30.5
10. Repayment on (4) above (2)	—	—	— 0.4	— 1.2	— 2.1	— 2.7	— 3.3	— 3.9	— 4.6	— 5.4	23.6
11. Total Repayment	— 3.8	— 5.0	— 5.5	— 4.5	— 4.8	— 4.4	— 5.0	— 6.1	— 7.1	— 7.9	54.1

(1) With "Official" is meant : Capital for the whole public sector including public corporations.

(2) At the time of preparing the Plan some loans were already secured for which the terms of debt service were not yet settled or known on a year to year basis ; the payments on such loans are not included with lines 6 and 9 but can be assumed to be included in lines 7 and 10. In calculating lines 7 and 10 it has been assumed on the other hand that grants up to some LS. 2 million per annum would be obtained from 1963/64 onward in addition to the amounts mentioned in line 3.

Line 1 of part A of this Table has been explained above. The figur in line 2 for "Loans already ascertained" refer to drawings on the followin loans. Considering the list it must be born in mind that the amounts ref to drawings which, as far as could be traced, did not appear in the balan of payments prior to 1st July, 1961.

	Provisional Assessme of the Amounts Still t be Drawn in Plan Period LS. Million
IBRD for Managil	4.8
IBRD and Kuweit for Railways	9.1
IBRD, IDA and West Germany for Roseires	18.0
Khashm El Girba Loan	2.6
Sennar H.E.P. Loan	2.9
Yugoslav Credits	5.2
Sugar Factory Guneid Loan	2.0
Aircraft Loans	3.1
Russian Credits	8.0
TOTAL	55.7

This list merely shows the loans which were definitely secured i September, 1962. Loans to be negotiated thereafter should be deducted therefore from line 4 ("capital still required") of the above Table and added t line 2. Equally, the grants and Wadi Halfa Compensation in line 3, totallin LS. 20.8 million are those that were definitely ascertained at the same date This LS. 20.8 million includes LS. 9.8 million of grants under U.S. Aid and U.N. Assistance. It has in fact been assumed that more grants to an amount of LS. 16 million would come available when calculating interest and amortisation in lines 7 and 10 of above table. The possibility should not be dismissed that more grants, or perhaps soft term loan may become available in the Plan period. Such a further shift from commercial type loans to grants and soft term loans would mean a most welcome alleviation of the interest and repayment burden.

In the Table above however interest and repayments have been calculated without taking account of such shifts. It was assumed that the additional loans would have to be repaid in 15 years and would bear 5 per cent interest. (These interest payments and repayments appear in lines 7 and 10. The payments in lines 6 and 9 represent of course the obligations that can already be definitely foreseen).

Finally it may be observed in the Table (line 5) that Government's receipts on account of interest from abroad are estimated at a constant LS. 1.5 million annually. This reflects the assumption that the foreign exchange reserves of the country will be maintained at or near their present level. This is based on the intention that from now onward the reserves will exclusively be used as a cushion against seasonal and other short term fluctuations in foreign exchange income, and not be used for investment financing. Within this policy the reserves could, of course, be used to help tide over years of unfavourable crops or market conditions and in that way could be instrumental in maintaining the planned annual investment volume in otherwise adverse circumstances. It must then however be stressed with great emphasis that the reserves should be allowed to return again to their prerecessional level in a following prosperous year. Because such short term movements of the reserves cannot be foreseen for the Plan period, the interest returns on the reserves have been set at the same level throughout the period.

SECTION 4

ADDITIONAL PUBLIC INVESTMENTS

The estimates in the previous section of this chapter of probably forthcoming internal public resources has been based on the present fiscal structure. This structure relies to a considerable extent on resources derived from imports. It has been pointed out already that as a consequence of import substitution, total imports will grow much more slowly than national production and income. It stands to reason, therefore, that resources derived from imports will also grow less than proportionately with income and production. In a period of stepped up development when especially heavy claims are put on public resources, a falling ratio of those resources to production and income might be considered as a less desirable phenomenon. It is therefore understandable that serious consideration is now being given to check in the Plan period the declining relative share of public resources during the Plan period. This section will be devoted to a preliminary assessment—based on various assumptions—of the effect of increased public resources, on public investment, on gross domestic product, on the international balance of payments and on other national uneconomic aggregates.

As a first assumption it will be taken that the measures to keep Central Budget revenue in a fixed relation to gross domestic product (factor costs; modern part of economy) will not be effective before financial year 1965/66. As it is now the plan foresees that this relation would be about 31 per cent in 1964/65 and that it might go down to some 26 per cent in 1970/71. As a second assumption, therefore, it will be assumed that the relation could be kept at 31 per cent throughout the years after 1964/65.

In order to assess the additional public resources which would be obtained in this way, it is necessary to consider first the possible effect of additional investments on gross domestic product. This effect depends of course on the particular choice of projects. It is proposed to add to the public investments already planned the following projects from the relevant list already given on page 21 of the Development Budget 1962/63.

TABLE 40

ADDITIONAL PUBLIC INVESTMENT PROGRAMME

(*£S. Million*)

1.	Balance of Ministry of Education Projects ..	8.5
2.	Khartoum—Port Sudan Road	25.0
3.	Establishment of Second Port	5.0
4.	Extension of Railway Line from Wau to Juba ..	6.5
5.	Extension of Railway Line from Nyala to Geneina	3.7
6.	Extension of River Rahad Scheme	4.6
7.	Jebel Marra Development	3.0
8.	Additional Use of Roseires Water	3.7
9.	Projects for Development of Backward Areas Specially the South	5.0
10.	Projects for Establishment of Nomads	5.0
	TOTAL	70.0

It will be observed that some LS. 30 million of total additional investments are entirely devoted to an improvement of the transportation system and that LS. 18.5 million will be spent on social and socio-economic projects. Great importance should be attached to this type of investment from a point of view of long term development, though their effect on gross domestic product during the Plan period itself will not be substantial. The main effects on gross domestic product in that period must be expected from such direct productive schemes as 7 and 8 in the above Table. Moreover, the additional effect of increased activity in the building industry has to be reckoned with. The estimated total effect of the additional programme on gross domestic product as well as revised annual series for public investment and resources are shown in the following table :—

TABLE 41

ALTERNATIVE ESTIMATES FOR SECOND PART OF PLAN PERIOD

(*LS. Million*)

			65 66	66'67	67'68	68'69	69·70	70'71
1.	(a)	Gross domestic product (1) without additional programme . .	227.3	241.9	260.5	280.6	302.2	325.5
	(b)	**With additional programme**	228.9	245.6	266.2	288.5	313.8	340.4
2.	(a)	**Public investment without additional programme**	32.0	30.2	30.9	31.6	32.3	33.0
	(b)	**With additional programme** (2)	36.0	38.0	41.0	44.0	48.0	53.0
3.	(a)	**Central Budget Revenue as foreseen in Section 9, Chapter II** . .	67.7	69.8	73.4	77.3	81.3	85.9
	(b)	**Alternative on basis of 31% of revised g.d.p. line 1 (b)** . .	71.0	76.1	82.5	89.4	97.3	105.5

(1) Modern part of economy. (2) Some additional investment in private building and civil engineering industry must also be expected.

As already stated the effect on gross domestic product in the Plan period would remain rather limited through the choice of the particular additional investment projects. Corresponding to the alternative series of gross domestic product in line 1 (b) is a rise in income per head from LS. 29.65 in 1961/62 (trend-basis) to LS. 37.92 in 1970/71 or by 27.9 per cent instead of 24.9 per cent. Apart from this, however, the additional investments would greatly strengthen the foundation for further development.

It is clear from part 3 of above Table that the additional Central Budget revenue would total some LS. 66.4 million if the Government kept its share in gross domestic product at 31 per cent through appropriate measures. The additional programme might have a small impact on Government's recurrent expenditure but over it is likely that the new revenue so raised would cover to a very large extent the LS. 70 million investment.

It must be envisaged however that the effect of the additional programme on the balance of payments during the Plan period itself might lead to a significant increase in the projected deficit on current account. It is true that the execution of various of the additional projects would on the other hand gradually have a favourable effect on exports. For the plan period as a whole increased foreign exchange income from such exports might be roughly assessed at some LS. 10 million. On the other hand the additional investments would naturally lead to more imports of equipment and building materials. Imports of other raw materials might slightly rise too and it is unlikely that the dampening impact of raised Government revenue on imports of consumer goods would be substantial.

CHAPTER III.

AGRICULTURE, FORESTRY, ANIMAL HUSBANDRY AND FISHERIES

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CHAPTER III.

AGRICULTURE, FORESTRY, ANIMAL HUSBANDRY, FISHERIES

1. *General*

As agriculture is the mainstay of the country's economy, considerable emphasis has been placed on its development in the Ten Year Plan. This is reflected in the allocation of investment for the agricultural sector. The following table indicates the total investment in the agricultural sector and its distribution among the main components:

TABLE 42

INVESTMENT IN THE AGRICULTURAL SECTOR

	L.S. 000
I. Public (1)	
Irrigation (2)	66.400
Agriculture	10.440
Forestry	2.250
Animal Resources and Fisheries	1.855
Land Use and Rural Water Development	5.818
Agricultural Bank (3)	3.359
TOTAL I	90.122
II. Private	30.000
TOTAL I + II ..	120.122

(1) Detailed supporting tables follow in this Chapter.

(2) Excluding H.E.P. works which can be found in Chapter IV.

(3) Excluding Silo works which can be found in Chapter V.

The public investment in the agricultural sector is about 24 per cent of total public capital formation; public and private investment together in the sector constitutes about 21 per cent of total investment (on a gross basis). The share of the agricultural sector in public investment is the highest of any other sector. The predominant role assigned to agriculture and irrigation in the Plan has been governed by a number of considerations. Since availability of stored water is the crucial limiting factor in expanding agricultural output, development of irrigation has necessarily to be given the prime place. Indeed the largest allocation in the agricultural sector is for irrigation. Again, the agricultural base of the economy has to be strengthened before any sustained growth can take place. It is no less essential that the excessive reliance on a mono-culture crop, cotton, has to be gradually reduced by diversifying the agricultural cropping pattern. This entails the development of various other crops besides cotton. Agriculture has also to provide for an expanding volume of exports to earn the foreign exchange for meeting the import requirements. The step-up in exports during the Plan period is of the order of 64 per cent and this has to be achieved almost entirely by expansion of export of agricultural commodities. In fact, the Plan aims at a diminution in the country's reliance on foreign exchange through import substitution; however in regard to exports it is not expected to reduce greatly the present predominance of primary commodities although the share of agricultural production in the total gross domestic product is planned to decrease. Therefore besides helping to earn more foreign exchange, agriculture has to contribute to saving foreign exchange as well. As the country is equally an importer of agricultural commodities, foreign exchange savings have to come primarily by import substitution of such commodities as can be produced locally. This applies particularly to such commodities as rice, coffee, wheat and timber. Agriculture moreover has to produce the raw materials for the nascent domestic industries like cotton textiles, sugar, leather, wood processing, cigarettes, sacking, cardboard, etc. Improvement of nutritional levels is another important desideratum which necessitates expansion of the production of dairy, poultry, fishery and horticultural products, the demand for which has been rising and may be expected to rise still further during the Plan period. It is also necessary for future development to undertake pre-investment surveys and investigations particularly in the more backward areas so that the basis could be laid for more intensive investment in these areas in subsequent Plans. In view of all these considerations, agriculture has perforce to be given a very high priority in the scheme of development envisaged in the Ten Year Plan.

The agricultural sector has traditionally claimed heavy public investment in the Sudan, contributing directly to increase in production. Between 1955 56 and 1959 60 public investment in agriculture accounted for 27 per cent of the total gross fixed investment by Government compared with 18 per cent of that of private investment in the modern sector. During the Ten Year Plan this tendency will be accentuated as two important irrigation projects, the Roseires Dam and Khashm El Girba Dam will be undertaken by Government, besides investments of an infra-structural nature like survey and demarcation of land, tree clearance for land development and provision of roads and water supply to pave the way for private investment in agriculture.

The contribution of the agricultural sector to the gross domestic product as a result of the Plan, is expected to increase from L 202.9 millions in 1960 61 to LS. 300.9 million by 1970 71, representing an increase of about 48 per cent of this, the contribution of the modern part is expected to increase from LS. 56.0 million in 1960 61 to LS. 97.9 million in 1970 71 (an increase of about 78 per cent) while that of the traditional part from 146.9 million to LS. 203.0 million (an increase of about 38 per cent). The faster rate of growth of the modern part of agriculture is to be ascribed to public investment on the major irrigation schemes and on the development of the areas coming under them partly by the government but largely by private enterprise. Further, private enterprise will be bringing under mechanized cultivation extensive areas in the rainlands (Nuba Mountains and Gedaref). The increase in the production of the traditional part is envisaged to take place through the effort of the producers in response to increased demand for agricultural produce from consumers and processing industries aided by public investment in infra-structure like transport and communication, in the development of rural of water resources consisting of hafirs, dams and water yards and the extension and improvement of agricultural services leading to increased productivity. It may be mentioned that a rising trend in the production of the traditional sector was already evident in the period preceding the Plan and the estimates of production of some of the crops during the Plan period are largely based on the extrapolation of these past trends.

2. *Irrigation*

The public investments for this purpose can be specified as follows :—

TABLE 43

PUBLIC INVESTMENT IN IRRIGATION (1)

	Sub-total LS. 000	Total LS. 000
1. Managil Extension		
(a) Old extension	7.186	
(b) 5th phase	7.000	14.186
2. Roseires Dam Project		
(a) Associated works	3.035	
(b) Construction of dam	23.428	
(c) Development of 300.000 feddans by pump and gravity irrigation	9.250	
(d) Soil survey	350	36.063
3. Khashm El Girba Project		
(a) Dam construction	7.713	
(b) Canalisation	6.435	
(c) Transmission line	350	14.498
4. Remodelling of the Gezira Main Canal Regulators		100
5. Debeiba Extension		150
6. Abu Usher—Ganeb Extension		30
7. Melut Pump Scheme		530
8. Jebel Merra Development		813
9. Investigation of Dinder and Rahad		30
TOTAL	64.647	66.400

(1) All projects to be sponsored by Ministry of Irrigation and H.E.P. save 2.

(2) By Ministry of Agriculture and 7 by White Nile Schemes Board.

The importance of irrigation water to the economy of Sudan can hardly be over-emphasised. The extensive fertile lands adjoining the Nile River can be put to productive use and bring life and prosperity to the rural people only if stored water becomes available. In fact expansion of agriculture has been restricted by the shortage of irrigation water during the season of low river flow (January to July). The new Nile Water Agreement of November, 1959 between the United Arab Republic and Sudan providing for the sharing of the Nile Waters has therefore been a land-mark, as it has enabled Sudan to construct a dam at Roseires to augment the amount of storage. The Roseires Dam is financially as well as economically one of the key projects of the whole Plan. Besides the Roseires, the Plan envisages the completion of the Managil project and its further extension by 200,000 feddans and the building of the Khashm El Girba Dam. These three irrigation projects involve an investment of about LS. 64.4 million, of which investment in the Roseires Dam itself constitutes about LS. 35.7 million.

The Plan envisages the completion of Part II of the *fourth phase* of the Managil Extension and undertaking of the *fifth phase*. The additional area that will be brought under cultivation as a result of the completion of Part II of phase IV is about 90,000 feddans. The *fifth phase* of Managil Extension involves the excavation of a branch canal for utilizing initially the surplus stored water from Khashm El Girba and then from Roseires Dam when completed, and the development of 200,000 feddans. Total investment on Managil Extension is LS. 14.2 million. The project is an extension of the Gezira Scheme and will be operated and maintained on the same lines and practices as that of the adjoining Gezira. Cotton and dura will be grown in a three course rotation, providing greater employment opportunities to labourers and tenants besides increased revenue to the Government.

The Roseires Project comprises the construction of a dam on the Blue Nile near Roseires and of associated works over a period of seven years for irrigation of new land and for providing additional supplies of stored water to the Gezira and Managil Schemes. The main purpose of the Dam is to have additional storage of flood water for use during the low river period when supplies are less than requirements. Initial capacity on stage I is 3 milliards (1—3 milliards) and ultimately when the Dam is further hightened by ten metres on stage II of the Project, the capacity will be increased to approximately 7.6 milliards. The stored water in the Roseires reservoir will ultimately be used for (a) intensification of cropping in the Gezira Area leading to the growing of an additional crop (besides long staple cotton) on 290,000 feddans; (b) development of new pump schemes along the Blue, White and Main Niles covering an area of 670,000 feddans; (c) extension of the Gezira-Managil area by about 200,000 feddans; (this will be realized as the *fifth phase* of the Managil Extension) (d) increasing water supplies for existing pumps and gravity schemes during the restricted season, and (e) expanding sugar cane production on the Guneid Pump Irrigation Scheme from 12,000 feddans to 15,000 feddans annually. Irrigation works and farm development will not commence until three years after starting the Dam construction. During the Plan period, intensification of cropping in the Gezira may not take place over the entire 290,000 feddans; on a modest estimate it is expected that intensification would take place on about 60,000 feddans. Similarly it is not reasonable to expect that private enterprise will be able to develop the entire 670,000 feddans. It is therefore proposed that 300,000 feddans should be developed by the Government. This would ensure the maximum benefit in the shortest period from the Roseires waters. A detailed soil survey will be conducted to determine the location of the areas most suitable for development. The investment for construction of the dam will amount to LS. 23.4 million; that on associated works LS. 3.0 million and that for the development of 300,000 feddans by the Government by pump and gravity irrigation LS. 9.3 million making a total of LS. 35.7 million.

The *Khashm El Girba Dam Project* consists of the construction on the river Atbara of a storage dam at Khashm El Girba to provide the necessary water for the development of 500,000 feddans of cultivable lands on the western side of the river stretching between Khashm El Girba Railway Station and Goz Regab. Owing to the flooding of the Halfa District North of Dal Cataract by the High Dam Reservoir, part of the area will be quickly developed for the rehabilitation of the people displaced from Wadi Halfa. For this purpose, an area of 125,000 feddans will be canalised and made ready to receive irrigation water by August, 1963. A further 25,000 feddans will be canalised to accommodate some of the Butana people simultaneously with the resettlement scheme. The construction of the dam requiring LS. 7.7 million is expected to be completed by June, 1963. On completion, the dam will have a storage capacity of one million cu m^3. The development of the first 150,000 feddans would require an investment of LS. 6.4 million. An appropriate crop pattern will be introduced in the area. Although the project is mainly for the resettlement of Wadi Halfa people, its benefits will extend to the local people of the Butana area as well as to other parts of the country in view of the possibility of making available the surplus stored water for use in other parts of the country. Thus with the availability of water from Khashm El Girba by July, 1963, it should be possible to bring additional feddanage under cultivation before water becomes available from Roseires Dam.

For intensification of cropping in the Gezira, it is proposed to ***remodel the Gezira Main Canal Regulators*** by which the present water restrictions applied during peak discharges in Central and Northern Gezira areas could be removed, permitting an increase in the crop rotation. It is also proposed through the ***Debeiba Extension*** to bring under command an area of 10,000 feddans. Similarly by the ***Abu-Usher-Ganeb Extension*** it is proposed to develop approximately 2,000 feddans. When the Gezira Main Canal Regulators are remodelled, it will be possible to irrigate the area coming under Debeiba Extension and Abu-Usher-Ganeb Extension even at the time of peak discharges.

For expansion of irrigated agriculture in the Upper Nile Province, the Plan envisages the utilization of the White Nile water by construction of irrigation facilities leading to the development of the *Melut Area,* the potentialities of which have been reported by a Commission in 1955. The total area possible for irrigation is approximately 51,000 feddans of which 25,000 feddans are to be developed during the Plan period. A three course rotation of cotton-rice-fallow will be followed. The scheme is intended to contribute to the socio-economic development of a most backward area. By demonstrating the techniques of irrigated crop production to the semi-nomadic Dinka and Shulluk tribes, the scheme is expected to encourage their settlement and their active participation in the economy of the country. The scheme will be run by the White Nile Schemes Board.

The hydrological investigations carried out in 1957 at the ***Jebel Marra Area*** have shown that water is available in good quantities as surface run off and ground water. Possible dam sites were investigated and proved to be quite feasible. The total area of arable land which could be commanded is about 320,000 feddans. The climate of the area is suitable for a wide range of crops. It is proposed to conduct further investigations to assess water resources and to carry out topographical and soil surveys. The United Nations Special Fund contributed a substantial sum for the investigatory parts of the project.

Actual development of the Jebel Marra area has been mentioned in section 4 of Chapter II as an additional programme project. Such development might start from 1964/1965 with 1,000 feddans under ground-water and 1,000 feddans under pumps, this rate of development to be continued throughout the Plan period until the total operated area becomes 14,000 feddans. This however is but a small fraction of the potential area. The Jebel Marra Scheme is the most important irrigation venture ever made outside the Nile basin; this scheme will not only introduce irrigation to areas where only dry farming is practised on traditional lines but is also expected to promote the economic and social well-being of such a remote area as Darfur Province.

The irrigation projects included in the Plan would lead to an appreciable expansion in the country's irrigated area. In 1960/61 the gross irrigated area was about 2.4 million. This is expected to rise to 3.5 million feddans by the end of the Plan, representing an increase of about 4.6 per cent. Not the whole of the area coming under Khashm El Girba Dam may however be developed during the Plan period. The additional irrigation will not only lead to a diversification of the agricultural economy but will also help to stabilize and increase commercial agriculture with consequent favourable effect on the national product, employment and balance of payments. Further, the provision of irrigation facilities to backward areas would lead to a better balanced regional development.

3. *Agriculture*

The investment on agricultural development is LS. 10.4 million. Its distribution over the projects is indicated in the following table:—

TABLE 44

Public Investment in Agriculture (excluding irrigation) by the Department of Agriculture (1)	Sub-Total (LS. 000)	Total (LS. 000)
A. *Crop Production*		
1. Expansion of American Cotton Consolidation of mechanical crop production schemes, tree clearance	4,710	
2. Coffee in Equatoria, tree clearance (1/10) ..	940	
3. Rice production	430	
4. Castor seed production	140	
5. Mechanical cotton picking equipment ..	70	
6. Investigation for reorganization of Government estates	100	
7. Kenaf production trials	80	
8. Tea plantation and factory	480	
9. Replacement of mobile plant	430	
C/F.		7,380

Public Investment in Agriculture (excluding irrigation) by the Department of Agriculture (1)	Sub-Total (LS. 000)	Total (LS. 000)
B/F.		7,380
B. *Horticultural Development*		590
C. *Agricultural Services*		
1. Crop protection division	520	
2. Seed propagation centre	200	
3. Building for field division outstation ..	200	
4. Facilities for seed heating and treatment of ginneries	160	1,080
D. *Agricultural Research*		
1. Buildings for Gezira Research Station ..	480	
2. Kordofan Research Station	500	
3. Re-organisation of Yambio Research Station	190	1,170
E. *Soil Survey Division*		220
TOTAL ..		10,440

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(1) This table does not contain all the investment projects in the programme of the Department of Agriculture; the project 'Soil Survey' in connection with use of Roseires water has been mentioned under 'Irrigation' and the project 'Warehouses' comes under the heading 'Transport and Communications' in Chapter V.

Crop Production. Programmes for crop production envisage not only the expansion of staple crops like cotton and dura but also the diversification of the cropping pattern and import substitution of such commodities as can be produced locally. Diversification is expected to take place by the development of crops like oilseeds, rice, sugar cane, wheat, coffee, etc. which would also reduce the dependence of the country on the import of some of these commodities. Within the cotton economy itself, some diversification will take place by expansion of production of short staple and medium staple varieties.

Cotton

Long Staple Cotton. The increase in production of long staple cotton will mainly take place by the completion of the Managil Extension (fourth and fifth phases) and by the utilisation of Roseires waters. The addition gross area that will be brought under cultivation as a result of the completion of the Managil Extension, Phase IV, Part II, will be about 90,000 feddans which on a three course rotation would bring 30,000 feddans under cotton. The fifth phase of the Managil Extension would bring under cultivation 200,000 feddans of which the area under cotton will be about 66,000 feddans on a three course rotation. The development of the 670,000 feddans which will be made possible by the Roseires Project, would bring under cotton about 225,000 feddans on the existing three course cropping pattern. The

Debeiba Extension and the Abu-Usher-Ganeb Extension would further bring under cultivation an area of 12,000 feddans of which the area under cotton will be 3,000 feddans on a four course rotation. Thus in all the additional area that will be brought under long staple cotton will be about 324,000 feddans. On the basis of average yield in the Gezira of 4.5 kantars per feddan, the production would be about 1.5 million kantars. However it is most probable that a substantial portion of these 324,000 feddans will be put to medium staple cottons.

American Cotton. To meet the requirements of the two textile factories estimated at about 80,000 bales and to maintain the present level of exports of about 50,000 bales, it is proposed to increase the area under mechanised production of American cotton by opening up an area of 300,000 feddans in Nuba Mountains and 500,000 feddans in Gedaref. On both areas a three course rotation (cotton, dura and sesame and fallow) will be adopted. In the Gedaref area Government will encourage private enterprise by surveying and demarcating land, undertaking tree clearance, providing graded roads and water supplies, establishing demonstration farms and providing field advisory service. Public investment of LS. 992,000 is envisaged for expansion of American cotton and consolidation of mechanical crop production schemes excluding some LS. 3,400,000 for tree clearance, machinery and operational costs of clearing these Nuba and Gedaref areas. Private enterprise will farm their allotments of 1,500 feddans which will be cropped in a three course rotation as mentioned above. No labour save tractor drivers and mechanics will be required at the stages of cultivation and weeding as these can be undertaken mechanically. Even cotton picking might be undertaken mechanically if the present trials prove successful.

The additional production of American Cotton in Nuba Mountains and in Gedaref would be 40,000 bales respectively. This would cover the requirements of the two textile mills and leave about 50,000 bales for export. To gin the additonal cotton that will be, one new ginning factory will be set up in the Nuba Mountians besides utilizing the surplus ginning capacity in the region and another at Gedaref, each with a capacity of 25,000 small kantars of seed cotton.

Dura. Mention was made in Part I of the progress in mechanized production of dura. Some further extension of mechanized cultivation of this crop is envisaged in the Plan. The opening up of 300,000 feddans for growing American Cotton in the Nuba Mountains is expected to lead, on a three course rotation, to an increase in area under dura by about 100,000 feddans. This would result in an increase in production of about 50,000 tons. In Gedaref, as already mentioned, it is proposed to substitute 100,000 feddans now under dura with American Cotton, but as a result of re-organisation of existing schemes on the basis of proper rotation and moving of some of the schemes to areas of heavy rainfall in the Southern Area of Gedaref District, the productivity is expected to increase. Thus while the present area of 455,000 feddans under dura in Gedaref will be reduced to 355,000 feddans, the productivity is expected to increase from 0.45 tons to 0.66 tons per feddan resulting in an increase in output by about 29,550 tons. The completion of the Managil Extension (Part 2 of Phase IV and Phase V) will bring an area of 96,000 feddans under dura in a three course rotation. Further the use of Roseires water will result in another 225,000 feddans under dura. The additional output of dura from all the schemes based on average yields in the respective areas would be about 288,000 tons. It may be expected that in the traditional sector the production of dura will increase by the same rate as the growth rate of the traditional sector itself *viz*: 3.3 per cent per annum. This would meet the requirements of the growing population. The country has already a surplus in dura and with the increase in production envisaged in the organised sector, the problem of marketing of dura will assume increasing importance.

Oilseeds

Groundnuts. There has been a steady increase in the area and production of groundnuts leading to an increase in exports from 24,000 tons in 1954 to 67,000 tons in 1960. This upward trend may be expected to continue as groundnuts is the most profitable crop next to cotton. As the estimates of groundnuts area and production have not been very reliable, it would not be safe to project the past trend in area and production. The alternative is to project the past trend in exports and from this and from the estimates of internal consumption and average yield per feddan, derive the trend in acreage and production. Under the plan it is envisaged that as a result of intensification of cropping pattern in the Gezira, about 120,000 feddans will be brought under groundnuts. Another 33,000 feddans will also be brought under groundnuts due to the remodelling of Gezira and the Debeiba and Abu-Usher-Ganeb Extensions. Taking into account the trends in acreage and production of groundnuts in the traditional sector and the increase envisaged in the organised sector, the total area under groundnuts at the end of the Plan is expected to be 712,000 feddans and production, 338,000 tons.

Sesame. As in the case of groundnuts, exports of sesame have also been showing a marked increase in recent years; from 25,000 tons in 1955 exports increased to over 76,000 tons in 1960. Estimates of area and production of sesame have not been very reliable and hence reliance has to be placed on extrapolation of rising trend in exports and deriving from it and from estimates of consumption the trend in acreage and producion as was done in the case of groundnuts. Some increase in area and production of sesame is expected from the rotational cropping pattern to be followed for mechanised production of American cotton in Nuba Mountains and in Gedaref which is estimated to be about 27,500 tons. This could be assumed in the projected trend in production. On the basis of this projection, the area under sesame is expected to go up to about 1.2 million feddans and production to 275,000 tons.

Castor. The area under castor is at present about 9,000 feddans all in the Gash Delta. It is proposed to extend this area to 20,000 feddans and to put a further area of 10,000 feddans in private schemes in the Northern Province. Thus castor will constitute another cash crop in Gash and in Northern Province. Nucleus seeds will be imported for propagation and variety trials will be conducted so as to ensure to the cultivators suitable varieties of the crop. From the additional area of 11,000 feddans in Gash and 10,000 feddans in Northern Province, a production of 12,600 tons may be expected. A provision of LS. 140,000 has been provided in the Plan for the scheme.

Rice. Experimental and pilot programmes conducted during recent years have demonstrated the possibilities of producing rice economically in the "toiches" or the flooded slopes of Bahr El Ghazal Province. It has also been found feasible to grow rice in Upper Nile Province. The yield which is about 1 ton a feddan is appreciably higher than the world average yield which is less than three quarters of a ton. At present, the country imports about four to five thousand tons of rice annually. In view of the possibility of producing rice economically and profitably, it is proposed to develop an area of 15,000 feddans in Bahr El Ghazal for rice production. Government would undertake a survey of an area of 50,000 feddans in the flooded areas of Aweil and from this select an area of 15,000 feddans for mechanised rice production. Government would also undertake construction of embankments to regulate irrigation and drainage according to requirements as well as provide adequate hulling capacity for the additional rice crop. It is envisaged that one third of the proposed area *viz.* 5,000 feddans would be under Government control and run on tenancy basis, the balance of 10,000 feddans will be allotted as private tractor farms of about 400 feddans each along the lines of the mechanised production of dura. On the basis of an average production of 1 ton of paddy per feddan, the output will be 15,000 tons of paddy which on hulling would result in an output of 6,750 tons of grade 1 rice and 3,000 tons of lower grades making a total of 9,750 tons. The schemes envisage complete self sufficiency in rice. A provision of LS. 430,000 has been made in the Plan for the scheme.

Coffee. On an average about 6,000 to 7,000 tons of coffee are at present being imported annually. Plantation trials in Equatoria have demonstrated that the environmental conditions there are suitable for production of coffee of the *robusta* variety. The area developed so far has been only 4,000 feddans. It is proposed to develop a further area of 15,000 feddans ; 5,000 feddans will be developed by Equatoria Projects Board in Maridi and Yambio Districts, 5,000 feddans by private enterprise and 5,000 feddans by peasant growers. To encourage coffee production as a peasant crop, it is proposed to establish twelve nurseries for production of seedlings to be distributed to growers and to extend field advisory service. Private enterprise is to be encouraged by tree clearance, provision of coffee seed and extension of field advisory service. The lack of water during the dry spell is to be overcome by overhead irrigation. As a result of the various schemes coffee production is expected to go up by 3,750 tons. Lest the whole of this production may not be realised during the Plan period, the balance of payments estimate has been based on a conservative figure of 2,000 tons as the extent of import substitution. The Plan provides for LS. 600,000 for the coffee scheme proper (of which LS. 300,000 will be for Equatoria Projects Board) plus another LS. 340,000 as the cost of tree clearing.

Tea. Imports of tea have averaged (over the three years 1957/59) over 7,900 tons annually. It is an important beverage of the people and its consumption can be expected to increase with the increase in population and urbanisation. In the Equatoria Province though conditions are not ideal, good possibilities exist particularly in some specified areas for production of tea. To demonstrate the possibilities of tea plantation and processing, it is proposed to establish a plantation of 1,200 feddans which in full bearing will produce about 720,000 pounds of tea which could provide sufficient capacity for a tea factory. As in the case of coffee, special cultural measures will have to be undertaken in view of the low rainfall and the three months of drought. The technical and economic aspects of tea production would be demonstrated by the establishment of the plantation and the factory. This scheme and possible future schemes in Equatoria would pave the way for the development of a relatively backward area.

Sugar Cane. Research and field trials have demonstrated that many areas of the Sudan are geographically and economically suitable for growing sugar cane. The major considerations are, availability of irrigation water in low rainfall areas and adequate labour supply. Based on the conclusions and recommendations of careful research, a 60,000 ton sugar factory has been set up at Guneid. An area of 30,000 feddans is being developed which on a three course rotation and provision of adequate irrigation water will produce about 4,000 tons of cane per day during the five months harvesting period or a total of 600,000 tons of cane. Almost all the operations are being mechanised. The possibility of producing sugar cane in Khashm El Girba area has also been demonstrated by pilot investigations. Ample supply of water is assured from the Atbara river except during the dry season; but the harvesting time can be scheduled to coincide with the dry season. It is therefore proposed to set up a second sugar factory of the same capacity as at Guneid, extensible however to 6,000 tons daily in Khashm El Girba. After extension, the production will be 90,000 tons of sugar annually. An area of 45,000 feddans will be developed here for growing sugar cane. The resettlement of the people from Wadi Halfa will make available the required labour force. Ultimately 150,000 tons of sugar will thus be produced by the two factories. It may be mentioned that the consumption of sugar has been steadily going up in the country; the import of sugar has increased from 60,000 tons in 1951 to more than 116,000 tons in 1959. The demand for sugar will continue to grow as population and per capita income increase, and it is expected that the consumption at the end of the Plan may be about 150,000—200,000 tons. The capacity of the two factories will thus be sufficient to meet the major part of the domestic demand.

Wheat. With the increase in urbanisation and the rise in income, the consumption of wheat has been going up to a marked extent. Imports, almost entirely in the form of flour, have increased from over 9,000 tons (being the five year average 1947 51) to over 81,000 tons in 1959. With the further increase in population and increase in per capita income envisaged during the Plan period, the demand for wheat is bound to go up still further. Production of wheat, largely confined to the Northern Province, has increased from about 16,000 tons in 1952 53 to about 26,000 tons in 1960 61. Wheat cultivation is being encouraged in the Gezira by way of intensification of the cropping pattern. The use of Roseires waters is expected to bring an additional area of 120,000 feddans under wheat. There is scope for increasing the yield by application of fertilizers and adoption of improved varieties of seeds suited to the various regions. It is expected that as a result of these various measures for increasing the production of wheat both in the Northern Province and in the Gezira, it would be possible to replace imports by domestic production completely by the end of the Plan period, although only 70,000 tons have been taken into consideration in the import substitution target.

Kenaf. The country is at present importing about 15,000 tons of fibre products in the form of sacks, hessian, etc. for handling the various agricultural products destined for exports and for domestic consumption. With the expansion in the production of various agricultural commodities envisaged in the Plan, requirements of sacking and baling materials will increase. The establishment of a fibre industry, besides bringing about savings in foreign exchange, would provide greater opportunities for employment on the land by production of the raw material. Kenaf can take on the role of producing a long fibre; experimental trials have been conducted at the Tonj Sisal Estate in Bahr El Ghazal. It is proposed to start a pilot scheme in the Tonj area to demonstrate the technical and economic possibility of expanding the production of Kenaf on a commercial scale. An area of 300 feddans is to be cleared for this purpose and 100 feddans will be put under kenaf fibre on a three course rotation. The feasibility of commercial production will depend on the success of the pilot scheme. Thus Kenaf production is still in the experimental stage but the possibility of manufacturing sacks and other baling material will already during the Plan period be produced from the fibre of the dom palm is being explored (see next Chapter).

Investigational Scheme. It is proposed to conduct investigation into the possibility of growing cash crops like coca, oil palm, etc. with a view to deciding on the scope for development of these crops during subsequent plans.

The following table indicates the area and production of principal crops in 1960-61, the level expected to be attained by 1970-71 and the extent of import substitution envisaged by the end of the Plan:

TABLE 45

EXPECTED INCREASE OF AREA AND PRODUCTION OF PRINCIPAL CROPS IN PLAN PERIOD

	1960-61 (2)		1970-71		Extent of Import Substitution Envisaged (3)
	(1) Area	(1) Production	(1) Area	(1) Production	
Cotton Sakel	680	2,149	1,004	3,649	—
American cotton ..	180	200	380	536	—
Mechanized production of dura	998	440	1,219	668	—
Groundnuts	471	192	845	401	—
Sesame	694	127	1,200	275	—
Castor	9	4	30	17	—
Rice	4	3	19	13	7
Wheat	39	26	69	96	70
Coffee	4	1	19	5	2
Tea	—	—	1	0.3	0.3
Sugar cane	—	—	75	1,500	(4) 150.0

(1) Area in 000 feddans and production in 000 tons except for cotton, which is in 000 Kantars of lint.

(2) The figures for American cotton should be understood as trend figures.

(3) Import-substitution has been estimated on a conservative basis and hence not exactly equal to ultimate production of the different projects.

(4) In terms of sugar.

Horticultural Development. Both for making profitable use of land by growing high value crops and for improving nutritional levels, the expansion of horticultural production is of considerable importance. With growing urbanisation and increase in income, the demand for horticultural products has been growing rapidly and will continue to grow during the Plan period in view of the high income elasticity of demand for these products. At present import of fruits and vegetables (fresh and canned) is of the order of LS. 230,000. It may be possible to effect a saving in foreign exchange if the production of these commodities could be stepped up. The country has a great potential in horticultural production. The Northern Province has been an important horticultural area; production here is far below capacity. The Equatoria region is another area, the potentialities of which have been relatively untapped. Some of the fruits which are grown in substantial quantities are grapefruit, lemons, dates, mangoes, bananas, oranges, tangerines, etc. The chief problems in respect of horticultural development are marketing and seasonal gluts and shortages. The former would be facilitated by improvement in transport and communication and the latter could be obviated by better preservation of fruits and vegetables and by undertaking their processing as well as by growing varieties suitable for particular seasons.

The investment in horticultural development proposed during the Plan period is LS. 590,000. The programme comprises the setting up of new nurseries, improvement of existing nurseries, provision of horticultural field advisory service and setting up of a horticultural research station.

With a view to expanding fruit production by supplying superior varieties of seedlings to private growers as well as by developing orchards, it is proposed to establish 21 new nurseries spread over the different provinces, particular attention being paid to the less developed areas. Each nursery will have about 155 feddans under fruit to produce seedlings. Over 10,000 seedlings consisting of oranges, citrus, mangoes, lemons and tangerines will be produced annually and the area that can be planted under the different types of fruits per year after the establishment of nurseries will be over 4,600 feddans (area under mangoes 2,688 feddans, under oranges 737 feddans, under grapefruit, lemons and tangerines, 420 feddans respectively). When orchards start to produce in the fifth year, it is estimated that the increase in the output of fruits will be over 19,000 tons per annum. Assuming 25 per cent of production will be consumed in the areas of production, the quantity that will be available for supply to other areas will be about 14,000 tons annually. For a sustained increase in production, it is essential to improve the transport of fruits by increasing the number of wagons with cold storage facilities and to reorganize the marketing system with a view to eliminating the middlemen as far as possible, thereby enabling the producer to secure a better price for his produce.

In addition to setting up of new nurseries, it is proposed to improve the existing 14 nurseries in different parts of the country in order to meet more efficiently the demand for seedlings from private growers. It is also proposed to set up a horticultural field advisory service to advise growers as to the best practices to be adopted in the light of the results and findings of horticultural research. This will ensure that the seedlings produced in the nurseries are planted according to appropriate standards of spacing, lay-out, fertilizer application, control of pests and diseases, etc.

Since establishing of orchards is a comparatively long term investment, it is essential that the provision of planting material and rendering of advice on management and production techniques should be based on results of systematic horticultural research. It is therefore proposed to set up a horticultural research station as part of the existing Hudeiba Research Station in the Northern Province. This will enable full use to be made of the existing facilities at Hudeiba and also serve the Northern Province, an important horticultural area, more fully.

For preserving fruits and vegetables and thereby relieving scarcity in the off-season, it is proposed to set up two new fruit canning factories and an onion dehydration factory with aid from U.S.S.R. A date processing factory is already in operation at Karima. Surveys have been made to determine the most suitable location of the new factories. One fruit canning factory will be located at Wau in the South, another at Karima in the North and the onion dehydrating factory at Kassala town in the East. The principal problem is to ensure a steady supply of fruits and vegetables to the factories. For this it is necessary to induce people to grow more of these products by provision of seeds, planting materials and by assurance of a reasonable price.

It is also proposed to undertake, with the assistance of the United Nations Special Fund the improvement of the traditional methods of food processing and for demonstration of improved methods of grading, packing and simple processing of fruits and vegetables.

5. *Agricultural Services*

For fuller utilisation of resources and for increasing productivity, measures such as provision of field advisory services, crop protection and supply of improved seeds have an important role to play. In fact the provision of these services is complementary to production schemes.

With the intensification of the cropping pattern in the Gezira-Managil area as a result of the Roseires Project, it would be necessary to expand and strengthen the agricultural advisory services to look after crops other than cotton, the standard of production of which has been comparatively lower than that of cotton. Similarly, with the new area that will be becoming under pump schemes due to the Roseires Dam, adequate supervision over the standard of farming has to be exercised as this has not come up to the same level as in the Gezira. *Since a considerable expansion in the production of* crops like oil seeds, rice, wheat, coffee etc. is envisaged under the Plan, it is essential that field advisory services should be oriented to the requirements of these crops.

For improved and co-ordinated protection of crops against pests and diseases, a Central Crop Protection Board has already been set up. Spraying of crops at present undertaken largely by private firms will be co-ordinated with the spraying requirement of Government schemes by the Crop Protection Division of Department of Agriculture which is the executive agency of the Board. Hitherto, plant protection operations have been conducted mainly from the headquarters at Khartoum. This has been an obstacle to the giving of prompt attention to control of pests and diseases in the various regions of the country. Under the Plan it is proposed to establish regional offices which will facilitate prompt reporting of the occurence of pests and diseases and enable control measures to be undertaken from Provincial headquarters at less cost and with more efficiency. The regional offices for Kassala and Blue Nile Provinces have been established during 1960 61. It is also proposed to mechanise locust control operations by the introduction of atomizer spraying. A provision of LS. 520,000 has been made in the Plan for the Crop Protection Division. An International Desert Locust control project has been initiated with U.N. Special Fund assistance with a view to devising ways and means f destroying this pest at its source and to discover the factors favouring ocust breeding and multiplication and measures to counteract them.

Hitherto efforts at organised propagation and bulking of seed have been largely confined to cotton. With the expansion in the area under cultivation of other crops, it has become necessary to propagate the use of proven seed of high yielding varieties of these crops. With this object in view it is proposed to set up a Central Seed Propagation and Testing Centre as part of Hudeiba Research Station with sub-centres at Kordofan and Blue Nile Provinces. The centre at Hudeiba will serve the irrigated areas in Northern and Khartoum Provinces and will deal with the multiplication and propagation of seeds of such crops as wheat, maize, barley, pulses, etc. suited to irrigated farming. The centre at Kordofan Province will serve both the Kordofan Sands area and the Nuba Mountains for bulking and distribution of seeds of different varieties of dura, sesame, groundnuts, etc. The sub-centre in Blue Nile Province will be attached to the proposd Sennar Research Station for investigation of alternative cash crops. The function of this sub-centre will be to meet the seed requirements of irrigated areas and in particular the pump schemes of Blue Nile Province and the rainlands. Attention will be focussed on the multiplication and propagation of improved varieties of seeds of crops other than cotton which have not hitherto received the same degree of attention.

6. *Agricultural Research*

The emphasis in agricultural research will be on diversification of the agricultural economy. The main lines of development envisaged are, the intensification of the cropping pattern with the availability of additional water from the Roseires Dam, the establishmenr of a Research Station for serving the needs of Kordofan and Darfur, the reorganisation of Yambio Research Station and the expansion of Hudeiba Research Station.

Under the present crop rotation in Gezira and Managil, only 50 per cent and 66 per cent respectively of the land commanded for irrigation is under crop each year. The resting of a sizable proportion of and in the rotation was introduced to reduce the incidence of disease and weeds, but with modern techniques these difficulties could be overcome more economically by other means. With additional water becoming available from the Roseires Dam, the cropping pattern has to be intensified by the introduction of additional crops.

The Gezira Research Station has been conducting trials on wheat and groundnuts. For wheat to play its part in the intensification plans, certified seed supply will have to be organized for suitable varieties. Similarly for groundnuts there is need for experimentation on varieties in demand in domestic and foreign markets and on labour-saving methods. In view of the need to bring about a more diversified cropping pattern in the Gezira-Managil area, a sub-station to the main Research Station at Medani will be set up at Sennar to concentrate on crops other than cotton and also on fodder crops to facilitate the integration of animal husbandry with irrigated farming. Another sub-station at *Maatug* had been set up with the sole purpose of experimenting with various rotations for intensifying the cropping pattern in the Gezira.

Kordofan and Darfur Provinces have not been served by any of the Agricultural Research Stations so far. With the extension of the railway line and the opening up of new areas for agricultural development in these two Provinces, it has become all the more necessary to conduct investigations into the various agronomic, plant breeding, soil and farm mechanisation problems of these areas. The bulk of the groundnuts and sesame crops are grown in this region, and for diversification of the economy attention has to be devoted to the development of these crops. It is therefore proposed to establish a *Research Station in the West* for looking after the needs of Kordofan and Darfur. A provision of LS. 500,000 has been made in the Plan for this purpose. The Research Station will have seven sections, agronomy, plant breeding, entomology, botany and plant physiology, plant pathology, soil chemistry and farm mechanisation. With the establishment of this Research Station, all the regions of the country will have facilities for research work on various aspects of crop production.

The Yambio Research Station which has been devoting its attention to crops like coffee, cocoa, oil palm, cotton, and to horticultural products like pineapples and bananas, is to be reorganised with the help of the Federal Republic of Germany. The Federal Republic will provide the necessary apparatus and equipment for the laboratories and tractors and implements for the farm and also help in providing the staff. With this reorganisation the Research Station will serve more effectively the needs of the Southern Region. In the Plan, a provision of LS. 190,000 has been made to meet the obligations of the Sudan Government for the reorganisation of the Research Station.

The Hudeiba Research Station in the Northern Province is to be developed, also with the help of the Federal Republic of Germany. It is proposed to establish seven branches at the Station *viz.* agronomy and plant physiology, plant breeding and plant improvement, botany and plant pathology, soil chemistry, entomology and pest control, seed multiplication and seed testing and farm machinery and farm economics. Unlike the other Provinces, the Northern Province has an intensive and diversified cropping system and the Hudeiba Research Station has an important role to play in improving the production of this region.

As has been already mentioned, a horticultural research section is to be established at the Hudeiba Research Station. Research will be directed mainly to evolving better varieties and will cover the fields of agronomy, entomology and plant pathology. The research section will have five branches; fruit husbandry, vegetable husbandry, plant introduction and propagation, bio-chemistry and preservation of horticultural products.

7. *Agricultural Credit*

The public investments envisaged in the Plan will give considerable impetus to private initiative in agricultural development. With the completion of the Roseires Dam, 670,000 feddans will come under new pump and gravity schemes. As mentioned already, 300,000 feddans of this will be developed by the Government and the balance of 370,000 feddans by private enterprise. The development of this area involves clearing, levelling and canalizing the selected areas as well as installation of pumps. The total cost of development of the 370,000 feddans by private enterprise has been estimated at about LS. 11.8 million. Private enterprise will also have to farm the areas which will be allotted to them when 300,000 feddans are opened up in the Nuba Mountains for mechanised production of American

Cotton. The same is the case with regard to the growing of American Cotton in Gedaref. Furthermore the private sector will also have to play a role in the expansion of the production of such commodities as rice, wheat, oilseeds, coffee, etc.

Though in general the opening of new investment opportunities in agriculture stimulates private savings, it is clear that more long and medium term agricultural credit will be required. The brunt of the institutional financing of such credit requirements has inevitably to be borne by the Agricultural Bank of the Sudan. The paid up capital of the Bank at present is LS. 3.0 million. The Government proposes to contribute another LS. 2.0 million so as to bring up its capital resources to the statutory level during the Plan period. With this increase in its resources, the Bank should be able to expand credit facilities for the rapid growth of agricultural production. Hitherto, the Bank has been financing the production of cotton up to 100 per cent of the expenses. With a view to encourage private savings and capital formation, the feasibility of making the pump-scheme owners put up part of the seasonal production costs will be explored.

In order to make credit facilities available in different parts of the country, the Agricultural Bank has already established 8 branches and 3 sub-branches. It is proposed to establish more new branches during the Plan period, the location of these branches will be decided after a careful assessment of the extent of agricultural expansion likely to take place in the different areas and the existence of co-operative credit societies in these areas. The Bank would also strengthen its supervision and inspection of the use of credit for various agricultural operations as well as improve marketing facilities for which the Bank proposes to set up two grain silos, one at Port Sudan and the other at Gedaref. The investment in these silos, at LS. 2,310,935 is included in the transport section (see Chapter V).

8. *Marketing*

Adequate marketing arrangements have to go hand in hand with the increase in agricultural production as otherwise the trade in agricultural products will tend to be restricted to the detriment of both the producer and the consumer alike. Improvements in marketing envisaged in the Plan relate to development of transport and communications, provision of storage facilities, study of market potential at home and abroad, grading and standardisation of commodities, marketing surveys of principal commodities and dissemination of market news.

The vastness of the country and the sparse population have stood in the way of the development of a network of transport facilities. With the extension of communication facilities envisaged in the Plan, the important producing and consuming centres will be more effectively linked and as a result, the price disparities between producing and consuming areas may be expected to be narrowed. Marketing of the products of the Southern Region has been handicapped by lack of adequate speedy and cheap transport facilities to the North. If resources become available, it is proposed to extend the railway line from Wau to Juba and this will contribute to more speedy and economic movement of goods from the South than provided at present by river transport.

To hold the surpluses in years of good crops for use in years of shortage, to relieve the pressure on transportation, to avoid deterioration from exposure and to even out the marketing of produce, thereby securing a better price for the producer, a programme for construction of warehouses and silos is envisaged in the Plan. Their investment requirement is included in the transport and distribution sector (see Chapter V).

The study of market potential at home and abroad is of particular importance for developing the country's trade in agricultural commodities. As the bulk of foreign exchange earnings is from agricultural exports, special attention needs to be paid to market conditions and to market potential abroad for the main agricultural exports. To facilitate this, Commercial Attaches have been appointed at the Sudan Embassies in London, Washington, Bonn, New Delhi and Cairo. Internally, study of the market potential is especially necessary in respect of horticultural products, the production of which is to be considerably expanded during the Plan period. The Project for Food Processing Educational Centre envisages a study of the market potentialities of the country's fruits and vegetables.

As an aid to marketing, grading and specifications for the main agricultural commodities other than cotton are to be introduced. The proposed Food Processing, Training and Demonstration Centre will also initiate a grain analysis and testing programme for dura and wheat which will establish grain qualities that will suit internal and foreign demand.

To improve marketing arrangements, marketing surveys of important commodities will be undertaken. A beginning is to be made by undertaking a survey of the marketing of fruits.

To ensure a reasonable price to the grower, co-operative marketing will be encouraged. A co-operative union for the marketing of dura has been formed at Gedaref. It is proposed to encourage the setting up of co-operative marketing societies in the Gezira for marketing of crops other than cotton, the responsibility for which rests on the tenant. Co-operative marketing of fruits has made some progress in the Northern Province. Dates are another important commodity in the Northern Province, the marketing of which, if done on a co-operative basis would be beneficial to the producer. There is considerable scope for co-operative marketing of such commodities as oil seeds, gum arabic, milk and milk products and potatoes in Darfur and Kordofan.

To acquaint the farmer with the trend of prices at important markets at home and abroad and thereby enable him to decide when and where to dispose of his produce, it is proposed to institute a market news service. A beginning has been made in this direction by broadcasting market news from the Omdurman Radio Station.

To look after the various aspects of marketing, and to ensure their efficient development, a Marketing Unit will also be established in the Ministry of Commerce, Industry and Supply.

9. *Forestry*

The total investment of about LS. 2,250,000 allocated to forestry can be specified as follows :—

TABLE 46

PUBLIC INVESTMENT IN FORESTRY (1)

		Sub-total LS. 000	Total LS. 000
1.	Reservation		350
2.	Forestry Plantations		380
3.	Khartoum Green Belt		210
4.	Wattle Plantations		26
5.	Shelter Belts (experimental)		25
6.	Irrigated Plantation in Blue Nile		250
7.	Firewood Plantation, White Nile		50
8.	Pilot Scheme for Acacia Woodland		13
9.	Management and Development of Dom Forests		49
10.	Encouragement of Plantation in Agricultural Schemes		30
11.	Timber Production :—		
	(a) New Equipment	410	
	(b) New Saw Mills	90	
	(c) Suki Workshop	10	
	(d) Preservation Plant	7	
			517
12.	Gum Arabic		55
13.	Soil Conservation		120
14.	Research and Education		75
15.	Special Vehicles for Forest Department ..		100
	TOTAL		2,250

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(1) All investments in the table is to be undertaken either by the Forests Department directly or through Province Councils; the table does not include either LS. 120,000 for forests industries, general investigations and rubber research, which will appear in Chapter IV of the Plan or the LS. 40,000 for additional offices for Forests Department are dealt with in Chapter III.

The forestry development programme has long term and short term objectives in view. The long term objective is to bring under permanent forest reserve that much of land area which is considered necessary for adequate protection and conservation of soil and water supplies as against the 0.6 per cent at present.

The short term objective is to meet the needs of the growing population for firewood, charcoal, building poles, sawn timber and other forest products. The Plan lays emphasis not only on reservation and new plantations but also on exploiting more fully the existing forest wealth so that the requirements of fuel, timber and raw materials for forest-based industries and for railway sleepers could be met to an increasing extent and the export of forest products stepped up. There has been a tendency no doubt for substitution of firewood by oil and gas in the more developed part of the country and it may be expected that this tendency would be accentuated with the increasing tempo of development. But against this has to be set the requirements arising from he increase in population and the denudation of forests by the extension of the cropped area, so that the problem of supplies of wood fuel is likely to remain acute. About 52,000 cubic metres of timber are at present being imported. With growing urbanisation and the increase in incomes, demand for timber for building purposes is bound to go up. The Plan envisages that the increase in timber production would effect a saving in imports to the extent of about 36,000 cubic feet. To prevent soil erosion and safeguard soil fertility, soil conservation measures will be intensified. Further, considerable importance is given in the Plan to forestry research and investigations which are basic for future development.

The present forest reserve estate comprises an area of about 2.6 million feddans. It is proposed to bring under reservation an additional area of 5.0 million feddans. The project is intended to affect all parts of the country, but priority will be given to Southern Blue Nile and Southern Kassala Provinces and next to Equatoria, the slopes of the Jebel Marra and Bahr El Ghazal Province. This would increase the forest reserve from 2.6 to 8.4 million feddans or from 0.6 to 2.2 per cent of the total area of the country.

New plantations intended primarily to meet the demand for sawn timber, firewood, charcoal and building poles and to provide them where they are consumed, instead of transporting them from long distances, will be established in different parts of the country. The main areas for these plantations will be Equatoria and Bahr El Ghazal Provinces, Southern Darfur and Kordofan Provinces, Jebel Marra and the Southern Fung. It is proposed that three quarters of the area planted, estimated at over 21,000 feddans will consist of hard woods and one quarter Conifers. Although plantations require an average of fifty years to reach their full size, additional produce can be obtained from thinnings.

For supplementing the supply of firewood and building poles to the Three Towns, it is proposed to establish "Sunt" plantations between Jebel Aulia and Khartoum over an area of 3,500 feddans along the White Nile. This would reduce the demand for desert scrub firewood on the one hand and the haul of railed firewood from the Singa-Gedaref area on the other.

An allied scheme is the establishment of a belt of irrigated plantations in the southern boundary of Khartoum stretching from the Blue to the White Nile over an area of 7,000 feddans, which besides meeting the requirements of firewood and building poles of the Three Towns would provide recreation and amenity for the people of Khartoum and protect Khartoum against dust blown in by dust storms in summer.

To meet the demand for timber of the Blue Nile Province, an area undergoing very rapid agricultural development resulting in rapid depletion of local supplies of timber suitable for firewood and poles, it is proposed to establish two irrigated areas, for tree growing, each of about 5,000 feddans, one in the Umm-Deleiba-Nuraniya area north of Singa and one near Abu-Namma. The 10,000 feddans under irrigated forests would produce about 100,000 cubic metres of wood in the form of firewood, poles and timber.

Similarly, for providing firewood and charcoal for the north eastern part of the country, it is proposed to establish schemes for regeneration and management of Acacia forest. There would be four such schemes, two in the Blue Nile Province and two in Kassala, in each of which 1,000 feddans of indigenous Acacia would be exploited and regenerated annually.

Besides Government plantations, it is proposed to establish private plantations on agricultural lands by rendering advice to pump scheme owners to plant trees and providing tree seedlings. Two nurseries are to be established to raise the seedlings, one in the Blue Nile in the Sennar-Suki area and the other in the White Nile. Not only would this meet the demand for poles and firewood but would also provide shelter for crops.

To protect the crops in the Gezira Scheme against the strong northerly dry winds in winter, it is proposed to establish experimental shelter bel s. An area of 1,500 feddans of experimental shelter belts is to be planted and observations will be made on the effects of shelter belts on wind force, humidity and growth of crops. It is estimated that one feddan of shelter belt will p otect 20-40 feddans of cropped land.

To increase timber production overall four new saw mills are to be established and, for improving the quality of timber, preservation plants will be established at six saw mills.

In view of the importance of domnuts and leaf fibre for manufacturing purposes, it is proposed to develop the dom forests along the Gash and Atbara rivers in Kassala Province as well as in the valleys of the Red Sea Hills, which have been subject to overcutting, over-grazing and wasteful utilization. The preservation and proper management of these forests would enable the setting up of industries for manufacture of sacks from the leaf fibre and of cattle fodder from the dom nuts if found feasible and economical.

To provide tanning material for the leather industry, experimental work on the establishment of wattle plantations are to be conducted chiefly in the Imatong mountains and the Jebel Marra area of Darfur where experimental plantations have already been tried. It is proposed to bring 4,000—5,000 feddans under wattle plantations. Although there are some indigenous tanning materials like talh bark and sunt bark they may not be able to replace wattle bark completely.

To investigate the possibilities of establishing different industries based on forest products, it is essential to know the resources of timber available and to test the different sorts of timber for various uses. *A Forest Inventory Section* has already been established in the Department of Forests and to cope with this work, it is proposed to expand this section and to provide necessary equipment. The investment of LS. 120,000 for forest industries has been added to the industrial sector (Chapter IV).

In view of the importance of gum arabic in the economy of the country, it is proposed to improve its exploitation and maintain its cultivation by encouraging cultivators through propaganda and extension work to establish gum gardens, by developing land previously growing hashab, but which has been abandoned, through the provision of well distributed sources of water, and by encouraging the growing of hashab as part of the rotation in the clay plains of Gedaref and Fung districts. It is also proposed to continue research on he silviculture of gum particularly in respect of regeneration, maximum tapping and methods of extraction.

Soil conservation work which is at present being done on a small scale is to be stepped up. To restore the fertility of the soil which has been lost through over-grazing and over cultivation, it is proposed to extend the measures undertaken for protection of town and village perimeters by the fencing of vulnerable areas in order to control soil erosion where it has become a serious menace. Important catchment areas will be protected from fire to encourage the growth of vegetation. These measures may be expected to maintain the productivity of the soil and improve water supplies.

In view of the immense range of conditions under which forestry is practised in the country and the great diversity of problems to be tackled the need for systematic foresty research can hardly be over-emphasised. It is proposed therefore to establish, with the assistance of the United Nations Special Fund, *a Forest Research Institute* with four out-stations covering the arid region of the North, the sands region of the West, the clay plains of the Central and Eastern part of the country and the Savannah region of the South. With the Research Institute will be combined the existing Forest Rangers, College. The Forest Research Institute is expected to be of considerable interest to the other countries of Africa having similar Savannah woodland.

Finally, it is clear that a Forest Department has special transport requirements and for this purpose LS. 100,000 is included in the plan. This amount also caters for launches for transport in riverain areas where roads are closed for long periods during the rains.

10. *Animal Resources*

Animal Husbandry

Programmes for livestock development relate to control of livestock diseases, improvement of breeding, provision of water and grazing facilities, introducing fodder crops or pastures in the scheme of intensification within irrigated areas, encouraging the settlement of livestock owning nomads, increasing the production of livestock products like milk, meat, eggs, hides and skins, etc. and encouraging their processing. These measures are expected to make the contribution to the gross domestic product commensurate with the importance of livestock in the enconomy.

The total investment for development of animal resources is LS. 1,855,000. A specification of this amount is given in the following Table.

TABLE 47

INVESTMENTS OF THE MINISTRY OF ANIMAL RESOURCES EITHER DIRECTLY OR THROUGH PROVINCE COUNCILS (1)

		LS. 000
1.	Establishment of 3 Veterinary Hospitals and 3 Mobile Veterinary units	90
2.	Quarantines	60
3.	Meat Inspection Service Development	24
4.	Hostel for Omdurman Training School	15
5.	Ecological Grazing Survey and Demarcation of Grazing Land	66
6.	Development of Range Land, Proper Utilisation of Water	100
7.	Forage Production in Irrigated Areas	25
8.	Expansion of Gazala Gawazat Experimental Centre and Darfur Settlement Scheme	263
9.	Poultry Development	38
10.	Dairies, Creamery at El Obeid, Milk Pasteurisation Unit	80
11.	Development of Mobile Laboratories and Main Laboratory	200
12.	Commencement and Development of Fisheries Services Institute	50
13.	Extension of Red Sea Fisheries and Marine Research Institute	103
14.	Fisheries Scientific Investigation and Inland Fisheries Institute	90
15.	Promotion of Game Preservation	70
16.	Hides, Skins and Leather Development (S.F.)	153
17.	Animal Health Institute	69
18.	Livestock Fodder Farm	250
19.	Transfer of Khartoum Zoo	200
	TOTAL	1,855

(1) **Excluding LS. 10,000 which amount can be found in Chapter VI of the Plan.**

Since without combatting and controlling animal diseases, no progress in livestock development is possible, three well-equipped *Veterinary Hospitals* will be established in the livestock rearing areas. One at Aweil in Bahr El Ghazal Province, the Second at Zalingi in Darfur Province and the third at Gedaref in Kassala Province. *Three mobile clinics* are also to be established in Darfur, in Blue Nile and in the Southern Provinces respectively. The livestock owners in various parts of the country have come to recognise the value of this service which includes advice on animal management. To prevent the ingress of diseases from neighbouring countries it is proposed to set up an additional ***quarantine station*** at Geneina in Darfur Province. As export of livestock is expected to go up during the Plan period, the existing quarantine facilities at Khartoum and Port Sudan will also be improved.

An *Animal Health Institute* has been set up with U.N. Special Fund assistance to improve animal health particularly by developing vaccine against contagious bovine pleuropneumonia.

As a first step in developing the potentialities of grazing areas. it is proposed to conduct a grazing and ecological survey with a detailed mapping of vegetation and soil in the important cattle rearing areas *viz.* Kassala, Darfur and Kordofan. No less important is the conservation of areas opened up by water developing schemes. For this, it is necessary to prevent over-grazing and to protect the grass from fire. It is proposed therefore to extend fire-lining over a larger area and render advice on land management and grazing practices so that seasonal moves and migration of nomadic livestock owners might be reduced. Forage production in irrigated areas is to be encouraged so as to pave the way for the integration of livestock with crop production. A survey of the availability of pasture will be carried out and fodder crop introduced in the scheme of intensification of crop pattern in irrigated areas. A beginning in this direction will be made in the Gezira. Further, the *Gawazat Experimental Centre* in Southern Darfur set up in 1956 for conducting grass land research and grazing improvements will be strengthened and expanded so that the results of the work undertaken there could be extended to southern Kordofan.

Improvement of cattle has been sought to be effected by selective breeding of indigenous herds ; it has been found that the two dairy types, Kinana and Butana are the best milking cows. Since the old established cattle trade between the United Arab Republic and the Sudan draws its resources to a large extent from the Western, and sometimes the Southern beef type of cattle, this breed is also to be improved. The Gawazat Centre has been undertaking selective breeding on a cattle ranch basis and has been demonstrating how, with availability of water, systematic rotational grazing and introduction of drought-resistant plants, nomadism could be limited and settlement made possible. This has served to dispel to some extent the notion entertained by the nomads in these parts that the north-south move is essential for their well-being as well as that of their livestock.

Export of cattle and sheep has been earning about LS. 1.5 million annually ; in addition, exports of camels to the U.A.R. has been fetching about LS. 2.0 million annually. For improvement of cattle marketing, cattle routes are being surveyed, provision of water supplies along the route is being arranged and supervision exercised to prevent over-grazing. To systematise the export of camels a number of societies has been formed in the various camel producing areas.

To ensure adequate supplies of meat to the Three Towns and thereby bring down prices during the dry summer season, a *Livestock Fodder Farm* is to be set up between Khartoum and Gezira which will serve both for the rearing of livestock and for provision of fodder to cattle owners. It is also envisaged that this scheme will serve as a pilot one for study of the problems of mixed farming and the rearing of best quality cattle for export purposes.

Exports of hides and skins have been a valuable source of foreign exchange, earning about LS. 1.0 million annually. A tannery has been set up to produce tanned leather for export. For training in better production of raw hides and skins, a Hides, Skins and Leather Development and Training Project has been initiated with the assistance of the United Nations Special Fund, it is also designed to develop local tanning materials and plants.

With the growing need for poultry products, it is proposed to expand the programme of setting up poultry units in different parts of the country.

Major emphasis will be placed on extension work to help private poultry producers in proper rearing, management and feeding of poultry. *A Poultry Demonstration Farm* will be established at Port Sudan and at Kassala.

To supply wholesome milk to big towns and other areas and to train people to take to dairying as a profitable occupation as well as to utilize surplus milk for manufacture of better, cheese, cream, etc., dairies have been already set up in El Obeid, Atbara, Juba, Malakal, Wau, Wad Medani, Torit, Um Benein and Ghazala Gawazat. *A milk pasteurisation unit* has also been set up at Kuku village in Khartoum with U.S. aid and it is expected to provide about 5,000 litres of milk daily on a co-operative basis. As a means of utilizing surplus milk which has been found to be quite substantial in Kordofan, a *creamery* will be set up at El Obeid. Similarly *a milk powder plant* will be established at Babanosa (see industrial section, Chapter IV).

As research, especially on disease control, is basic for livestock development, the activities of the Research Division in the Ministry of Animal Resources will be expanded and three more *mobile laboratories* will be established, one each at Kordofan, Darfur and in the South for field investigations. A new Veterinary Research Laboratory will be built in Khartoum.

Fisheries. The fisheries development programme envisages the introduction of commercial fisheries activities for the first time in the Blue Nile and Northern Provinces. Fisheries surveys will be conducted in various parts with a view to establishing a number of fishing camps for commercial exploitation of fishery resources as well as for training local people in modern fishing methods. Extension of fisheries services is already in progress in Upper Nile, where there is a vast area of waters which if properly developed could contribute to a great increase in fish production both for home consumption and for export. Here too surveys will be conducted to find out suitable fishing grounds for the establishment of sun-dried salted fish camps. A scheme of fish farming in the Zande district has been in operation since 1959. It is now proposed similarly to cover the whole of the Zande area in view of the chronic shortage of meat in this region due to the tsetse fly. The Juba Fishery Team which has been working in Equatoria Province has been moved to Bahr El Ghazal Province to develop the fishery resources in this area. For development of marine fisheries, the activities of the Red Sea Fisheries Office, the most important of which is the pearl shell cultivation scheme, will be expanded. *A Marine Biological Station* is proposed to be established at Port Sudan for making investigations into the migration, spawning, habits and habitat of Red Sea fish and for carrying out research on improved methods of pearl shell cultivation. For development and promotion of fish culture, the research work carried out at the *Inland Fisheries Research Institute* at Gordon Tree near Khartoum is to be expanded. The Fishery development schemes, besides meeting the internal requirements of fish are expected to lead to an increase in the export of sun-dried, salted fish for which a market has already been established.

Promotion of Game. As the country is rich in wild life, the Southern and Eastern Region being more conspicuous in this respect, it is proposed to conserve and improve wild life. Through tourism and sale of game, this could make a valuable contribution to national income. Further, through proper consideration and cropping methods designed with the help of F.A.O. the game animals can contribute appreciably towards the protein diet of the people in certain parts of the country where acute shortage of animal protein occurs due to tsetse fly infestation. *The Khartoum Zoological Gardens* are to be transferred to a better site and will be expanded; besides its value for education and entertainment, it will serve as a collecting centre for the export of game.

11. *Land Use and Development of Water Resources*

The Department of Land Use and Rural Water Development will invest LS. 5,218,000 in the Plan period on the following items:

TABLE 48

INVESTMENT FOR LAND USE AND RURAL WATER DEVELOPMENT

	LS. 000
I. Department of Land Use and Rural Water Development either Directly or through Province Councils:	
Specific Projects	335
Haffirs and Dams	1,500
Rectification of Haffirs and Dams	507
Land Use Projects	200
Equipment	100
Buildings	200
Mechanical Transport	600
Drilling	538
Erection of Water Yards	1,000
Grant to Provinces for Open Wells	238
TOTAL	5,218
II. Ministry of Finance and Economics	
Land Capability Survey	600

While irrigation projects augment water supplies and promote further agricultural development, there are vast areas which cannot be served economically by the diversion of surface water from the Nile and its tributaries. These areas comprise the rainlands where the economy is predominently nomadic and pastoral. Peasant agriculture is practised here; the important crops grown being dura, groundnuts, sesame, short staple cotton and gum arabic. In recent years mechanised crop production has been established in such rainland areas as Gedaref, Dali and Mazmum. Provision of adequate water supplies along with soil conservation practices in these areas can go a long way in extending crop production and providing pasture for cattle. The development of water resources by construction of *haffirs* (tanks) has facilitated mechanised cultivation in Gedaref. The same factor accounts to a great extent for the expansion of cotton production in Nuba Mountains.

The provision of water supplies in an arid country like the Sudan has an essential social welfare aspect. It is estimated that in the three Provinces not served by the Nile *viz.* Kordofan, Darfur and the Kassala Provinces, the population is getting less than half the minimum requirements of water for domestic use, estimated at four gallons per head per day. In these arid and semi-arid areas, all surface water supplies as well as sources of underground water, have to be investigated and utilised without which neither cattle can be grazed nor crops harvested.

The investment for development of water resources is LS. 5.2 million. It is proposed to construct 240 hafirs, 16 dams and 120 water yards in the various provinces bringing the total number of hafirs to 755, dams to 27 and water yards to 271. It is expected that the total water supplies provided will increase by 32 per cent in Darfur, 46 per cent in Kordofan and by 56 per cent in Kassala. Even so, the availability of water per person per day will only be 2.3 gallons in Darfur, 1.9 gallons in Kordofan and 1.6 gallons in Kassala as against the requirements of 4 gallons per person per day. This gives a measure of the leeway still to be made up. It is roughly estimated that about 3 million feddans of agricultural land and about 17 million feddans of pasture will be opened up as a result of the water resources development.

It is also proposed to investigate and execute a number of water spreading schemes mainly in the Beja region which would help to develop peasant agriculture in this largely underdeveloped part of the country. It is also proposed to undertake preliminary, research and pilot studies for further development of water resources. An *arid land research project* is to be established with the help of UNESCO.

Land Use. Proper land use is an essential requisite for planned agricultural development. This implies that land is utilised according to its capability for cultivation, pasture and forestry. Broadly, land capabilities are determined by type of soil. Level of fertility, amount and pattern of rainfall and the slope of the land. Judged by these criteria, Northern Kordofan, Northern Darfur, the Butana and Beja regions of Kassala Province may be regarded as having lands of low capability mainly suited for production of pasture, while Central Kordofan, Darfur and Western Blue Nile have lands of medium capability which, with measures of soil conservation, rotation and use of fertilisers, could be put to crop production. The clay plains of Kassala, Blue Nile, Kordofan and Upper Nile Province have lands of high capability where the rainfall is adequate; with water conservation and utilisation practices, the lands have a high potential for crop production. The undulating lands and steep slopes of Equatoria, Kordofan and Darfur are generally lands of low or medium capability being mainly suited for forest and other tree and bush crops.

The actual pattern of Land Use has not conformed to this criteria of capability. Lands are often over-grazed particularly those with water supplies. The removal of vegetation in town and village perimeters for firewood and other purposes has led to soil erosion. In the cultivated areas, land is not often treated according to its need with the result that there has been a depletion of soil fertility and decline in yield of crops. The absence of adequate soil conservation measures and vegetative cover has resulted in an extension of arid and semi-arid desert. It is proposed to conduct a *Land Capability Survey* for which a provision of LS. 600,000 has been made in the Plan to be sponsored by the Economic Planning Secretariat of Ministry of Finance and Economics. It is also proposed to expand the Soil Survey Section of the Department of Agriculture for conducting more soil surveys and for preparing soil classification maps.

As mentioned earlier a *Land Use and Rural Water Development Board* has been set up with Province Committees with a view to ensuring that utilization of land and rural water resources is planned in the best economic and social interests of the country, and to allocate priorities for all land use schemes and rural water development schemes submitted by various authorities. This Board will have to bring about the necessary co-ordination of the activities of the different department in respect of land use and chalk out an integrated policy for proper land use.

For the improved use of land and water resources in the Savannah Belt of Kordofan where, as a result of unsatisfactory land use practices, soil deterioration has been taking place and production has been declining, a *Land and Water Use Survey* with the assistance of the U.N. Special Fund is being undertaken. The project envisages survey of the basic physical resources combined with experiments and demonstrations on improved methods of land use in the three major fields, cultivation, pasture and Savannah forest. The area to be surveyed is about 30,000 square miles and the project is to extend to 6 years. As a result of the survey, a development plan for the area based on small scale experimentation, on improved crop production, improved grazing and improved management of gum acacia forests along with a combination and rotation of these forms of land use, will be prepared. It is expected that the adjustment of land use pattern to land capability in the project area will stimulate development of new land on the South Eastern and South Western fringes of the area.

12. *Agricultural Projects in the Additional Public Investment Programme*

Should additional public savings become available for the execution of more investment, the execution of River Rahad Diversion Scheme (the investigation for Dinder Rahad Diversion Scheme is already included in the normal programme), Jebel Marra development and further utilization of Roseires Dam water would have high priority in the field of Agricultural development. The same holds true for further projects for development of backward areas, especially the South and resettlement of nomads.

CHAPTER IV

INDUSTRY, MINING, PUBLIC UTILITIES AND CONSTRUCTION

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CHAPTER IV

INDUSTRY, MINING, PUBLIC UTILITIES AND CONSTRUCTION

1. *General*

It has already been mentioned in Chapter II that the share of the industrial output in the national income of the Sudan is expected to increase from 9 per cent in 1960/61 to 16 per cent in 1970/71. This implies a faster growth of the industrial sector than of the other sectors. However this rapid development demands a heavy investment in the industrial sector during the Plan period, amounting to LS. 106.6 million or some 19 per cent of total gross fixed investment (modern type). This is much higher than the share of industrial investment in the period 1955/56–1960/61 which was then 11 per cent.

The output of the main components of the industrial sector in 1960/61, the investment in this sector – detailed as to public and private – and a necessarily very rough estimate of the output in 1970/71 is shown in the following table:—

TABLE 49

OUTPUT AND INVESTMENT IN THE INDUSTRIAL SECTOR DURING THE PLAN PERIOD (LS. MILLION)

Components of Industrial Sector	Output in	(1) Net Investment in Plan Period			Output in
	1960/61	Public	Private	Total	1970/71
Public Utilities	1.4	15.9	0	15.9	5.0
Minerals	0.3	0.4	4.0	4.4	2.8
Manufacturing	5.8	25.3	51.0	76.3	39.8
Building and Civil Engineering	25.0	0.3	10.0	10.3	45.4
TOTAL	32.5	41.9	65.0	106.9	93.0

(1) Net implies for the public sector that the figures do not include Chapter 3—type capital expenditures.

The salient point in this table is the substantial increase in manufacturing production. It is indeed expected that its output will increase by over 550 per cent during the Plan period. Such an expectation is fully justified both on the basis of past experience and in the light of the many manufacturing projects, public and private, which are now already in the stage of execution. The production of minerals will increase too, though its share in the gross domestic product will remain modest. It might be stressed, however, that such industrial progress will by no means be achieved at the expense of agricultural development. On the contrary the two lines of development will go hand-in-hand as the development of agricultural will provide more products for industrial processing and the industrial sector will provide agricultural needs (such as fertilizers) and consumers' goods to meet the growing demands of the farming community.

The output of public utilities will rise much faster than the gross domestic product as a whole while the output of building and civil engineering is related to the high investment level.

The increase in the output of the building industry demands a relatively small investment, whereas the relation is, as usual, unfavourable with public utilities. The ratio between investment and increase in production, the so-called capital output ratio, is around 2.4 for manufacturing and mining, a value that is about equal to the ratio in irrigated agriculture, which is the country's main line of agricultural development.

Investment in building and civil engineering falls nearly completely within the private sector, the only exception being the relatively small amount of LS. 336,000 that will be invested during the Plan period by Public Works Department (in so far as it can be considered as a contractor) in its own buildings and equipment. It consists of LS. 250,000 for offices, LS. 36,400 for special transport requirements and LS. 50,000 for improvement of workshops. Other remarks about the development of the building and civil engineering sector have already been made in Chapter II when discussing investment and price stability. Some further details will now be given regarding the development in public utilities, mining and manufacture.

2. *Public Utilities*

During the Plan period there will be a considerable expansion in the public supply of electricity and potable water. This will not only be the consequence of economic development new industries, new pump schemes, etc. but represents the results of measures designed to improve the living conditions of people.

Investment in Public Utilities during the Plan period, will be undertaken entirely by the public sector of the economy. The total investment amounts to LS. 15.9 million, details of which are given in the next table.

TABLE 50

INVESTMENT IN PUBLIC UTILITIES DURING THE PLAN PERIOD

Sponsor	Projects	Amount (LS. 000)
(1) Ministry of Irrigation and H.E.P.	Foundation of Hydro-Electric Power Installation in Roseires Dam	1,000
	Sennar Hydro-Electric Power	2,779
(2) Central Electricity and Water Administration	Capital Expenditure Programme	10,507
(3) Ministry of Local Government	Public Utilities Loan Fund for Province Councils	1,600
	TOTAL ..	15,886

The major part of this investment will, as can be seen from the table be undertaken by the Central Electricity and Water Administration. Nearly half the sum, allocated to this government enterprise, will be spent on electricity works in the central area (which stretches from Khartoum to Sennar) and in Atbara. Another LS. 2.6 mln. will go into the improvement of the water supply in the Three Towns; the remainder of the allocation to the Central Electricity and Water Administration will go into minor works and miscellaneous items. The allocation to the Public Utilities Loan Fund will enable the Province Councils to improve the electricity and water supplies in many towns outside the central region.

Provision has already been made for the development of hydro-electric power at Sennar Dam and the construction of a 110 KV.HT. line to interconnect Khartoum (Burri Thermal Station) with Sennar, Wad Medani and Hassa Heissa. The present installed capacity on this network is 44,000 K.W. which will rise to 59,000 in 1963 when Sennar Hydro station is in full operation. Towards the end of the Plan period it is envisaged that the capacity of the net work in the central area will be about 8,000 K.W. As mentioned already, the electrification of Sennar Dam will come to completion in the beginning of the Plan period. At that time the Dam will be capable of producing 80 million kwt. annually. When Roseires Dam has been completed, it might be possible —due to an improvement of stream regulation of the Blue Nile—to double the power output of the Sennar Dam. During the Plan period no electricity will be generated by the Roseires Dam though, as can be seen from the list of investments, preparatory work will already be undertaken. However the possibility of partial or full installation of the potential hydro-electric capacity cannot be ruled out if a project materializes which will be a big consumer of electric power.

3. *Minerals*

It has already been remarked several times that the lack of progress in Mineral Production, which characterised the past period, is not so much due to lack of mineral deposits but rather to difficulties in organisation and transport. The continuous production of minerals has so far been virtually restricted to salt and gold but the existence of several other deposits of commercial interest seem now to have been at least tentatively established. The most important of these other minerals are iron ore, mica, copper, asbestos, chromite, manganese, wollastonite and vermiculite. It is likely that further exploration during the Plan period will show the existence of still more deposits of commercial interest like lead and zinc ore, graphite, sulphur, gypsum, etc. This further research will mostly be carried out by the Government and for this and other purposes, which will be discussed below, a capital expenditure of LS. 392,000 has been allocated to the Geological Survey Department. Private enterprise too will partake in this exploration, *e.g.* in trying to locate oil.

While most of the preparatory research is carried out by the Government the exploitation of minerals is undertaken by the private sector. Except for gold and salt private mining activities started only during the last four or five years in Sudan through the effort of small local companies. This being a new field of investment the capital made available was very limited due to the imagined risks of investment in an unknown locality and in an untried business. Thus it became apparent during these years that development of the mining industry is bound to be slow without the active support of the

Government. Such support form therefore part of the Ten Year Plan and will consist of direct advice in the field on the best methods of exploration of deposits, and of supervising the mining activities in order to make sure that the products mined for export are graded to the satisfaction of world buyers. This is extremely important as any irregularities in the quality of exported minerals will damage the reputation of the country in this respect for many years to come. This advisory task will be undertaken by the Geological Survey Department whose technical staff will be greatly increased.

This closer association of the Government with mining activities will, however, not be sufficient for a full development of the mining industry. In order to attain this it is also necessary that private capital, whether local or foreign, goes into this sector to a much greater extent than has hitherto been the case.

For this Plan period, a rather limited amount of private investments, *viz.* LS. 4 mln. in the mining industry is foreseen. Most of this LS. 4 mln. will be spent in the exploitation of the copper deposits of Hofrat El Nahas (see below). It is therefore expected that production at the end of the Plan period will still be rather modest as is shown in the following table. It should, however, be stressed that the production figures for 1970/71 are a very rough estimate indeed.

TABLE 51

MINERAL PRODUCTION IN 1960/1961 AND 1970/1971

Minerals	Unit of Quantity	Quantity		Value (LS. 000)	
		1960/61	1970/71	1960/61	1970/71
Salt	000 Tons	54	70	81	105
Gold	000 Fine Ounces	5,000	2,500	75	33
Iron Ore	000 Tons	0	100	0	375
Mica	000 Tons	0	2	0	300
Copper (concentrate)	000 Tons	0	20	0	1,500
Asbestos	000 Tons	0	10	0	500
Chromite	000 Tons	0	15	0	150
Manganese	000 Tons	5	15	50	150
Wollastonite	000 Tons	0	15	0	90
TOTAL VALUE ..				206	3,203

The production of iron ore, copper concentrate and chromite as well as part of the salt and asbestos production will be exported (it is included in "other commodities" in the export table).

It may be useful to discuss in some more detail the development of each of these minerals during the Plan period.

Salt is obtained near Port Sudan from sea water. The output fluctuates around 54,000 tons but a small expansion is expected to take place during the Plan period which will increase the output to 70,000 tons.

Gold is now being exploited on a small scale in the Northern Province, Southern Fung District and in Equatoria Province. One of the two modern goldmines will cease operations during the Plan period owing to the flooding of the Nile Valley north of Dal Cataract. Thus a drop in production during the Plan period seems inevitable.

A few deposits of ***iron ore*** have been recorded in the Red Sea Hills and one of them has already been leased to a local company (with foreign financial collaboration) which has very recently begun production. Other iron deposits have been discovered in Kordofan and Darfur. These seem to be quite big for the one at Jebel Abu Tulu in Dar Messeriya for example has reserves totalling about 35 million tons, but this deposit has not yet been leased. It's location may for some time hinder its economic exploitation under present technical methods.

A large area in the triangle Atbara—Abu Hamad—Merowe is known to be quite rich in ***mica*** and exploitation has been taking place on a limited scale. Production has now come to a standstill owing to financial difficulties of the small mica mining companies and no improvement in this situation is foreseen for the near future.

The ***copper*** deposits in Hofrat El Nahas area are now estimated to be well over 10 million tons containing on an average about 5 per cent copper. The investigations in that area also proved the existence of uranium ore with the copper. It is expected that a foreign company will start exploitation in 1962/63.

Asbestos of good quality was discovered in the Qala El Nahal Area, South of Gedaref. It is expected that production will start during the Plan period. There is a possibility that the low grade asbestos can be utilised for the production of building materials within the Sudan.

A small quantity of ***chromite*** has also been found in the same area and exploitation may start during this Plan period.

Manganese is found in the Red Sea Hills where there are a few small mines. It is likely that some further development of these mines will take place. Manganese deposits have also been discovered near Malakal.

Deposits of ***Wollastonite*** and of ***Vermiculite*** have also been located in the Red Sea Hills. The former contains about 305,500 tons of concentrated ore of excellent quality. Commercial exploitation of these wollastonite deposits seems certainly possible and it has therefore been included in the previous table to a small extent. The size of the vermiculite deposit is not yet known and further research will be necessary.

4. *Manufacture*

The importance of development in manufacturing industries has already been pointed out in connection with import substitution. The table below shows what with be invested in manufacturing industries by the public sector together with estimates for investment by the private sector. For the public sector, it is possible to allocate the investment in more detail to specific industries and by sponsor.

TABLE 52

INVESTMENT IN MANUFACTURING INDUSTRIES DURING THE PLAN PERIOD

Sponsor	Projects	Amount Sub-Total	(LS. 000) Total
Public Investments			
Ministry of Commerce Industry and Supply	Government Tannery (1)	612	
	Cardboard Factory (1)	676	
	Guneid Sugar Factory	7,916	
	Khashm El Girba Sugar Factory	10,063	
	Canning Factories	1,415	
	Kassala Onion Dehydration Factory	492	
	Babanousa Milk Powder Factory	756	
	Industrial Research Institute	268	22,198
Ministry of Finance and Economics	New Equipment for the Mint		80
Stores and Equipment	Strengthening the Facilities of the Department		400
Industrial Bank	Bank's Capital		2,500
TOTAL PUBLIC INVESTMENT			25,178
TOTAL PRIVATE INVESTMENT			51,000
TOTAL INVESTMENT IN MANUFACTURING INDUSTRIES			76,178

(1) These amounts do not include revotes from previous programmes.

This table shows that the amount of planned public investment in manufacture is more than half the private investment in that sector. This is quite a new phenomenon as public investment in manufacture in the period 1955/56—1960/61 has almost been negligible and it certainly shows the keen interest of the Government in the industrialisation of the country. The specific reasons for public investment in just these types of manufacture are in some cases the size of the investment (as with sugar production) and in others the as yet lack of interest, or rather hesitation so far on the part of the private sector. The later explanation is particularly applicable where the public investment will open up new fields of industry, *e.g.* the cardboard factory, the onion dehydration factory and others.

This direct government participation in manufacture does not of course mean that the private part of the economy will not invest in this sector. On the contrary: the average annual private investment in manufacture is expected to be about LS 4 million which compares very favourably with the annual average of LS. 1.1 million in the period 1955/56—1960/61. The expectation of such a high private investment volume is first of all based on the many investment plans that are already definite. The most important of the private industries that will certainly expand are the industries producing edible oils, cigarettes, footwear, matches, glass, cement, cotton textiles, fertilizers, insecticides refined petrol products and paper and sacking material. Furthermore, the continuation of the favourable economic policy of the Government, in particular the further application of the Approved Industries Act, will no doubt result in further private investment in manufacturing industries. Another favourable influence in this respect will emanate from the newly established Industrial Bank, which was set up in order to help in founding more private manufacturing industries by assisting in financing and in technical preparations in addition to expansion and modernization of existing industries.

In this connection it is also noteworthy that in the above table funds have been approved for industrial research. The Ministry of Commerce, Industry and Supply proposes an investment of LS. 267,857 for an Industrial Research Institute, whereas the Department of Forests will have available LS. 120,000 for general investigation into forest industries.

Before considering the other projects in detail, some general remarks about the nature of the expansion in manufacturing might be made. It might first of all be observed that nearly all the industries which are planned or seriously considered industries are based on import substitution, the only exception being the additional production of edible oils and of dehydrated onions. Secondly, most of the substituted commodities are still consumer goods, but it should be noted that local manufacture of raw materials will become ever more important during the Plan period. These raw materials will partly serve the building industry (namely cement, paints, glass), partly transport (refining of petroleum) and partly agriculture (fertilizer and insecticides industry and factories for sacks and baling materials). Thirdly, no major project has so far been formulated for the production of capital equipment so that most of the equipment required for the development plan will thus still have to be imported.

The following table shows the progress in production from 1960/61 to 1970/71 for those types of manufacturing industry—both public and private—where a considerable expansion will definitely take place. It might be noted in passing that the effects of this expansion on the balance of payments, through export promotion and import substitution, has been taken care of in drawing up the projection of the balance of payments for the Plan period. This however, is not the case with those manufacturing industries which are still under consideration.

TABLE 53

OUTPUT OF SELECTED MANUFACTURING INDUSTRIES

	Unit of Quantity	Production in 1960/61	Production in 1970/71
Edible Oils (1)	000 Tons	40	65
Sugar	000 Tons	0	150
Canned Fruit	000 Tons	0	2.4
Milk Powder	000 Tons	0	0.8
Dehydrated Onions	000 Tons	0	5.0
Cigarettes	Mln. Pieces	108	900
Footwear	Mln. Pairs	2.8	8.3
Cotton Yarns and Cloth	000 Tons	[illegible]	15.9
Matches	Mln. Pieces	0	5,770
Glass	000 Tons	0	10
Paints	000 Tons	0.1	2.1
Cement	000 Tons	120	280
Paper and Cardboard	000 Tons	0	5.0
Fertilisers	000 Tons	0	90
Insecticides (1)	000 Tons	0	6.8
Refined Petroleum Products	000 Tons	0	924

(1) Estimates for output of edible oils and insecticides should be considered as very tentative.

The different types of manufacturing industries will be discussed hereunder in the sequence in which they appear in this table. Furthermore some remarks will be made on the prospects for a factory for sacks and other baling materials from the dom palm fibre.

Edible Oils

Expansion in the cultivation of cotton, groundnuts and sesame will result in an increased supply of oil seeds. This increase will not only lead to a higher level of seed exports but will also make possible a rise in the private production of edible oils. A large part of this increased production will be absorbed by domestic demand but it is expected that the export of edible oils will go up too.

Sugar

TABLE 54

AVERAGE ANNUAL SUGAR IMPORTS IN DIFFERENT PERIODS IN SUDAN (000 TONS)

1947/51	47.7
1952/56	98.4
1957/61	117.4

Sugar consumption in the Sudan for household and industrial purchases has increased appreciably in the last 15 years as is apparent from the bove table.

It does not seem unreasonable in the light of this table to expect a sugar consumption towards the end of period of some 150,000 – 200,000 tons which would cost about LS. 3.8 - 5.0 mln. in foreign exchange if no import substitution were to take place.

The Plan, however, contains ample provisions that such substitution will in fact, occur. Firstly, the sugar factory in Guneid has been executed according to plan, production is going to start this season and the factory will work in full capacity in March, 1965 when sufficient supply of sugar cane will become available. Secondly, the Ten Year Plan provides for the establishment of another sugar factory at Khashm El Girba in order to cover a greater part of local requirements. When the second factory is in full operation the production of the two factories together is expected to be some 150,000 tons and will thus cover the larger part of the domestic consumption.

The Guneid as well as the Khashm El Girba Factory will be undertaken by the Government.

Canned Fruit

Fruit canning factories will be established in Karima in the Northern Provinces and in Wau in Bahr-El-Ghazal Province. The production will be about 3 million tins (equal to 1,200 tons) in each factory which is somewhat higher than present consumption. Thus these factories might on the one hand stimulate consumption and on the other hand might even prove to be of value in promoting exports.

The fruit canning factories, as well as the milk powder and onion dehydrating factories, to be discussed hereunder, will all be government enterprises.

Milk Powder

A milk powder factory will soon be ready for operation in Babanousa in the West. A good milk supply can be expected in that area and as it is located near the railway, transport should not present any difficulties. The factory will have a capacity of processing 25 tons of milk a day which corresponds to an annual output of some 830 tons of milk powder which is well in line with expected consumption during the Plan period.

Onion Dehydrating Factory

An onion dehydrating factory will be established near Kassala. Its output, amounting to some 5,000 tons of dehydrated and sliced onions will be largely exported. As one ton might well be valued at LS. 300, the output of this factory might bring in about LS. 1.5 million in foreign exchange (it is included in other commodities in the export table).

Cigarettes

The annual consumption of cigarettes in the Sudan in 1960/61 was about 1,000 million pieces, of which roughly 100 million were produced locally and 900 million imported, costing about LS. 0.8 million in foreign exchange. A considerable rise in consumption is expected not only as a consequence of a rise in per capita income but also through the spread of the smoking habit.

It is foreseen that the existing private factories will expand their production to 900 million cigarettes in 1967/68. They now still use mostly imported leaves as raw material but this will have changed by the end of the Plan period when it is expected that sufficient quantities of tobacco leaf will be grown in Equatoria Province.

Footwear

Sudan's consumption of footwear of all types was about 10 million pairs in 1960/61 of which one quarter was made locally and three quarters imported. There is still a vast potential market for footwear in the Sudan as the habit of wearing industrially made footwear has not yet penetrated throughout the country.

During the Plan period, the local production of footwear, all of which is private, is expected to increase very rapidly to about 8.3 million pairs which is still under the consumption level. These factories used to depend on imported raw materials but this will be reduced as the output of modern tanneries, which have recently been put into operation, will be sufficient to cover the demand for leather.

Cotton Yarn and Cloth

The country is now importing textiles costing about LS. 12–13 million annually. At the top of the list are cotton textiles which form two thirds of total imports of textiles. No doubt the country's consumption of textiles will increase very much owing to the growth of population and the rise in per capita income.

Several private spinning and weaving factories were approved; one of them started operating in 1962 and another one will start late in 1963. The estimated production of these two factories in 1970/71 will be about 15,900 tons. It might perhaps be remarked that these factories will belong to the most modern and, as is already indicated by the size of their production, to the biggest of their type in Africa.

The raw materials for these factories will be short and medium staple cotton; the Ten Year Plan contains important projects for expansion of the cultivation of this type of cotton.

Matches

The private factory already established has sufficient capacity to satisfy about 60 per cent local consumption. It is expected that during the Plan period the full capacity will be utilized and the quality greatly improved.

Glass

The present requirements of the Sudan for glass is estimated to be about 6,000 tons costing about half a million pounds. The whole consumption in 1960/61 was covered by imports, but a sizeable and modern private glass factory is now in operation, producing all kinds of glass (except glass sheets and glass for medical and scientific purposes). It is expected that a second glass factory will start production during the Plan period and the productive capacity of the two factories will be about 10,000 tons per annum, which will be sufficient to cover the consumption during the Plan period of the types of glass which they are capable of producing. The industry will rely for 90 per cent of its raw materials on local products, such as sand, limestone and dolomite.

TABLE 55

CEMENT PRODUCTION AND CONSUMPTION

Year	Production (Thousand Tons)	Net Import (Thousand Tons)	Consumption (Thousand Tons)
1955-56	66	18	84
1956-57	63	24	87
1957-58	74	56	130
1958-59	88	5	93
1959-60	90	22	112
1960-61	92	40	132

Cement

Cement production and consumption in the last six years is shown in the adjacent table. Though production has already risen substantially imports are still considerable. The heavy investment in the Plan period will undoubtedly lead to an important increase in cement consumption by the building and civil engineering industry. It is therefore gratifying to note that the plan foresees an expansion of the existing private factory as well as the establishment of a new one, also on private basis. It is expected that in 1970-71 the production will total about 280,000 tons.

Paints

Like the cement industry, the manufacture of paints too is closely connected to building activities. In view of the high investment level a brisk rise in demand for paints can be expected. The requirements of the country in 1960-61, were some 1,500 tons costing about LS. 300,000. Most of it was then still imported, but local private production of paints towards the end of the Plan period is estimated to reach the level of some 2,100 tons which, it would seem, might easily be absorbed by the local market.

Paper and Cardboard

The present consumption in the Sudan of the various types of paper and cardboard is about 6,800 tons per annum costing about one million pounds. The increase in the number of schools and the increased utilisation of cardboard for packing by industry are among the factors that will undoubtedly lead to a rapid increase in paper and cardboard consumption.

One private paper factory is now under construction in Khartoum North It will use waste paper as raw material and will have a capacity of 3,000 tons of wrapping paper. There are several plans for utilizing the cellulose from papyrus, that grows abundantly in the South, for making paper but it is as yet early to tell whether these plans will materialise.

As regards cardboard, experience has shown that cotton stalks are a suitable raw material for the manufacture of cardboard and wrapping paper. Aroma, near Kassala has been chosen as a site for a government cardboard factory whose planned production is 2,000 tons per annum. Moreover two other additional factories in the private sector were approved.

The huge amount of cotton stalks in Gezira cannot yet be exploited because of the fear of spreading cotton pests but as soon as adequate scientific measures are devised to guard aginst this danger, the output of cardboard and wrapping paper may rise to such an extent that part of it could even be exported.

Fertilisers

In 1960 the Sudan imported some 70,000 tons of fertilisers worth about L.S. 1.3 million and consumption must be expected to rise rapidly owing to the great agricultural expansion. Since the earliest days of agricultural research it has been recognised that the predominant need of the soil of the clay plain, in which most of the cotton grows, is nitrogen and by far the largest part of the fertilizer imported consists of this type.

Approval has been given to a combination of foreign firms to set up a factory for such fertilizers in Port Sudan. It is expected that the factory will start operation during the Plan period. Its output will be about 90,000 tons nitrogenous fertilizers which will probably be sufficient (even allowing for a rapid growth of the requirement) to cover the country's need for fertilizers of this type during the Plan period.

Insecticides

Insecticides are another important agricultural raw material. The Sudan now imports some 3,000 tons costing about L.S. 900,000 but a rapid expansion is expected as the area to be sprayed will increase considerably. It is most probable that during the Plan period a private insecticides factory will be established in Wad Medani to cover Sudan's need for insecticides during the Plan period.

Refined Petroleum Products *

An important contribution to the growth of chemical industries in the Sudan will come from a petroleum refinery that is soon to be built in Port Sudan by the Shell Company. This refinery might even be completed in the first half of the Plan period and it will then have an output of about 924,000 tons. This is rather high in comparison with Sudan's present import of liquid fuels which is in total about 440,000 tons. However, it can only be expected that consumption of such types of fuel will increase very rapidly.

Sacks and Baling Materials

Sudan imports of sacks, baling materials and rope is very considerab indeed as is shown by the figures for 1960 in the following table. As with othe agricultural raw materials the planned agricultural development will lea to considerable increase in the consumption of this type of raw material.

TABLE 56

Imports of Sacks and Other Baling Materials in 1960

	LS.
Sacks	1,207,038
Hessian (Jute Bags)	159,775
Rope	43,341
TOTAL	1,410,154

Serious consideration is now being given to a private enterprise projec for producing sacks and hessian. It is intended that the factory will utilis as raw material the leaf fibre of the dom palm.

CHAPTER V

TRANSPORT, COMMUNICATIONS AND DISTRIBUTION

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CHAPTER V

TRANSPORT, COMMUNICATIONS AND DISTRIBUTION

1. GENERAL

It is an accepted fact that adequate and efficient transportation and communications as well as distribution facilities are essential for successful economic development. This importance was fully recognized by the Government in the recent past. In the period 1955/56—1959/60 about 30 per cent of total public investments went into projects of this kind. In the same period private investments in this sector also rose sharply.

The planned growth of the gross domestic product pays special attention to this relationship between transport and the growth of economic activity. In an absolute sense public investments in transport and communications will be higher in the Plan period, 1961/62—1970/71 than in 1955/56—1959/60. On an average L.S. 6.3 million annually will be invested compared with L.S. 5.4 million. Moreover if additional resources become available to execute some of the supplementary essential projects of public investments, all the following projects would probably be executed :—

	L.S.
Khartoum- Port Sudan Highway	25.0 Million
Regeneration of Suakin as a Second Port	5.0 ,,
Extension of Railway Line from Wau to Juba ..	6.5 ,,
Extension of Railway Line from Nyala to Geneina ..	3.7 ,,

The following table summarizes the public investments in this sector for which funds have already been allocated :—

TABLE 57

SUMMARY OF FIXED INVESTMENTS (1) IN THE SECTOR "TRANSPORT, COMMUNICATIONS AND DISTRIBUTION" IN THE PLAN PERIOD 1961/62—1970/71

Categories	Sponsors	Sub-Total L.S. 000	Totals L.S. 000
Public Investment			
1. Railways, River Services, Harbours, Hotels	Sudan Railways	34,984	
	Ministry of Commerce, Industry and Supply ..	160	35.144
2. Roads, Bridges, Ferries ..	Ministry of Works ..	2,000	
	Ministry of Local Government	4,560	(2) 6.560
3 Shipping	(3)	—	—
4. Air-Transport, Airports ..	Sudan Airways	4.534	
	Dept. of Civil Aviation ..	9,667	14,201
5. Posts, Telegraphs and Telephones	Dept. of Posts and Telegraphs	—	2,712
6. Meteorological Services ..	Meteorological Dept. ..	—	394
7. Public Mechanical Transport	Mechanical Transport Department	979	
	Ministry of Local Government	200	1,179
8. Warehouses, Silos, Stores	Dept. of Agriculture ..	360	
	Agricultural Bank of Sudan	2,311	
	Customs Dept.	36	2,707
Total Public Investment			62,897
II. Private Investment			32,000

(1) For Central and Local Government the figures do not include Chapter III—Type Capital Expenditure.

(2) This amount includes only LS. 250,000 for the Khartoum—Wad Medani Road. This is the share to be financed by the Sudanese Government. Further investments in this road, roughly estimated at LS. 1.5 mln., will be financed under U.S. Aid and the work will be carried out by a foreign contractor. Total investment in item 1/2 of the table would then add up to LS. 6.6 + LS. 1.5 = LS. 8.1 mln.

(3) The figure of investment by the Sudan Shipping Line is included under II "Private Investment" because this enterprise is organised as a private company.

2. Railways, River Transport, Harbours and Hotels

Development of the transport capacity of the railway and river services is a continuous forward looking process. The book value of locomotives, rolling stocks and fixed assets rose from LS. 16.7 million in 1952 to LS. 44.3 million in 1958/59 and in this year the railway embarked on a major scheme of main line locomotive dieselisation with an order for a first instalment of fifteen

1850 H.P. main line diesel electric locomotives. Such development plans were intensified with the aid of a World Bank LS. 13½ million loan to cover the foreign exchange element in the 1958/59 and 1959/60 capital programmes and at the end of June, 1961, the book value capital expenditure had risen to LS. 52.5 million. The number of diesel-electric locomotives was increased to 40 and this number is now in service. There can be no question as to the correctness of the railways' diesel traction policy, but late deliveries and design problems have been a severe handicap to the railways efforts to improve its services.

The railway's new development plans from the year 1961/62 onwards are primarily designed to meet the requirements of the country's Ten Year Development Plan. They will be reviewed from time to time and any necessary adjustments in keeping with general economic development will be introduced. Should the Khartoum--Port Sudan Road be constructed in the Plan period this may also effect the railway investment programme. For the moment the railway development plan seeks to ensure that sufficient port and rail-river transport capacity will be avilable ahead of the country's growing requirements to an extent commensurately with efficient service at reasonable cost to the users. The proposals are the result of a detailed analysis of all the country's known agricultural and industrial development schemes and are also compatible with the macro-economic projections. They are adjustable to meet unforeseen changes in the tempo of economic development.

The capital development programme for the Plan period is related to an average increase of 6 per cent per annum cumulative in the ton kilometres to be carried.

Such a growth rate should also be considered against the background of the general projection of economic aggregates in Chapter II of the Plan. The rise in total gross domestic production is planned to be on an average some 5.2 per cent per annum cumulatively for the economy as a whole and over 7 per cent for the modern part of the economy. Focussing attention more specifically on the growth of exports and of imports, it must be born in mind first of all that the increase of the latter is expected to be less than that of exports as a result of considerable import substitution. In the earlier years of the Plan period, however, a peak in imports due to a similar peak in investments should be reckoned with. In addition the building of the dams and transportation for the Wadi Halfa Resettlement will create heavy demands. For those and other reasons, including an early raising of the margin of locomotive capacity to give greater operating flexibility during the February-May seasonal traffic peaks, the earliest acquisition of 30 additional main line diesel locomotives was considered necessary. Equally a rapid completion of works in arrear was scheduled for 1961-63. Such considerations have particularly affected the phasing of railway investments in the Plan period. They will be highest in the first years of that period, leaving aside any eventual execution of the railway extensions embodied in the additional " public investment programme ".

Apart from this special phasing of railway investments in connection with the various factors mentioned above, the general programme of railway traffic for the Plan period as a whole gives particularly heavy weight to the growth of exports of primary produce. The projection of the export value in Chapter II of the Plan corresponds with an average rise per year of slightly below 6 per cent cumulatively for the total export quantity of the main commodities cotton, oilseeds and gum. It can furthermore be expected that an even more rapid growth of the export of other commodities will take place.

In drafting the railway development plan much attention was given also to the problem of seasonal peak transport demands. The minimum, average and maximum monthly transport demands of the railway are currently in the proportion of 1.0 ; 1.5 ; 1.8. The possibility should not be dismissed that as a result of increased crop production the slack and busy export season may tend to intensify until more inland storage will be provided and improved marketing procedures permit of a more even flow of exports over the year. The progress towards diversification of the economy should help to mitigate the seasonal disparities in railway traffic demand but this is necessarily a long term process. Inevitably therefore the Sudan Railways will, in the Plan period, still have to cope with the problem of empty wagon haulage in the first half of the year to maintain the supply of wagons for exports whereas in the second half of the year the reverse problem of supplying empty wagons to Port Sudan arises. This causes, of course, unproductive operating costs. From an economic point of view it would not be appropriate—neither for the country as a whole nor for the railways—to base the railway capital programme wholly on peak demand. In the Plan period alone this would call for 25 per cent higher investment than is planned now. Another policy has been followed in framing the railways plan. Many investments to raise the efficiency of services are included, and this together with special measures and deferred maintenance in times of highest demand, should make it possible to meet seasonal peaks.

The summary table in the beginning of this Chapter shows total investments of LS. 35,144,000 in the category " Railways, River Services, Harbours, Hotels." Only LS. 160,000 of this amount will not be sponsored by sources other than the Sudan Railways and this will be by the Ministry of Commerce, Industry and Supply as the Government's participation in a new hotel to be built in Khartoum. The balance of funds for this project is expected from private sources and can be taken to be included in the total amount for private investment in this sector.

The remaining LS. 34,984,000 to be sponsored by the Sudan Railways is specified in the table hereunder. The foreign exchange component is estimated at some LS. 23 million.

TABLE 58

PUBLIC INVESTMENTS FOR RAILWAYS, RIVER SERVICES, HARBOURS AND HOTELS

Service	Description	No.	LS. 000's
Railways	*Diesel locomotives and spares* :		
	Main line	77	8,377
	Shunting	21	602
	Vehicles :		
	Wagons : Goods	1,000	3,500
	Tanks	240	950
	Livestock	190	570
	Coaches and Rail Cars		2,340
	Miscellaneous including automatic couplers		868
	Dieselisation : Plant and Equipment		954
	Miscellaneous		200
	Stations, Yards, Signalling, Communications		3,161
	Land, Buildings, Quarters		1,929
	Permanent Way :		
	(a) Rerailing Port Sudan-Khartoum in 90 lb rails—betterment contribution	800 kms	1,600
	(b) Southern Extension and Khashm El Girba	—	984
River Services	Craft, Plant and Equipment . .		315
Port Sudan	Buildings		392
	(Berths 8 and 9 " work in progress ")	—	—
Hotels and Catering	. . . .		153
Miscellansous	. . . .		111
Classified as	(i) Additions	20,166	27,006
	(ii) Renewals/Improvements . .	6,840	27,006
	(iii) Work in Progress (items carried over from previous years capital programmes)		7,978
	TOTAL . .		34,984

The accent in the programme presented by this table falls on investments to raise capacity and efficiency on existing lines. The further extensive dieselisation calls for the purchase of 77 high powered diesel locomotives and an initial order for 30 has already been placed. As mentioned above, this will facilitate the transfer of the people who move from Halfa to Khashm

El Girba and it will serve as a useful reserve of power for the heavy seasonal movement of crops. The main line from Port Sudan to Khartoum is now almost entirely operated by diesel locomotives and the aim is to dieselise the line from Haya to Sennar and possibly Sennar to Khartoum. The policy of diesel operation extends to shunting engines of which 21 are provided for. The phased ordering of additional coaching and freight rolling stock is well in hand. New passenger coaches will be built in the railway workshops at Atbara and consideration is also being given to the ordering of rail cars to operate between Khartoum and Medani and Khartoum and Atbara. More powerful locomotives, larger wagons and higher speeds call for stronger vehicle couplings of better design: some 2,000 of the older vehicles in service will be fitted with the new equipment.

The new development plans will see the conclusion of the reconstruction of Khartoum marshalling yard redesigned to facilitate the 'through' flow of trains—the construction of new goods sheds and a new modern passenger station. Additional and improved crossing station facilities are included to give increased line capacity and better train operation. A completely new marshalling yard at Sennar Junction will improve the four-way flow of traffic at this centre and facilitate the diversion of freight trains to the recently relaid Kassala line.

Modern signalling and telecommunications are necessary if the maximum use is to be made of locomotives, rolling stock and the permanent way. Double wire signalling operated from central frames has been installed practically the whole way from Port Sudan to Khartoum and plans are made to introduce modern signalling equipment on the Kassala and El Obeid lines. New train control circuits are also to be introduced throughout the Kassala and El Obeid lines.

An important feature of the railway's development plans is the relaying of the Port Sudan Khartoum line in new 90 lb. rails in place of the old 75 lb. rails which are beginning to show signs of deterioration here and there. The new track will probably be ballasted through the Red Sea hills where the heaviest train density is dealt with, and where the physical conditions in point of gradient and curvature are the most difficult. The work will be spread over seven or eight years and the cost will be borne in part as a charge to working expenditure and in part as a capital betterment item. The recovered 75 lb. rails will ultimately be used for further railway extensions in other parts of the country; the renewal of the main line is an inescapable requirement which cannot be put off indefinitely. The time is opportune to begin the work forthwith; to acquire at the earliest date possible all the engineering and operating advantages of heavier rails, notably improved train speed which on stronger track will be well within the capacity of the new diesel locomotives. The investment table contains, as new railway track the completion of the Southern Extension and of the Khashm El Girba line of 70 kms. Further extensions are included in the additional programme of public investment, the execution of which is dependent on the raising of additional financial resources.

The river services call for a relatively modest investment of LS. 315,000. These services have already been rehabilitated at considerable cost and the main inland water problem will be to transfer the fleet of vessels from Halfa to Khartoum and Kosti when the new High Dam is created at Aswan. These river vessels will not be suitable for operation on open lake waters and river surveys are in hand to find safe routes whereby the vessels can be moved to the south under their own power.

In the recent past considerable investments have been made in the *harbour* at Port Sudan. The construction of two new berths Nos. 8 and 9 was legislated for in the 1960/61 programme. All berths and warehouses are rail and road served. Transport cranes and pipelines are available for the handling of special bulk cargo. Planned investments for the Plan period are therefore relatively small, *viz.* LS. 392,000. Nevertheless it is foreseen that a second port will eventually be necessary and preparatory work should preferably be started in the first ten-year period. For this reason LS. 5 million has been included in the additional public investment programme as a token provision.

The Hotels and Catering department of the Railways are building a modern air conditioned hotel with 100 beds which is being built near the existing Grand Hotel in Khartoum.

The Railway development plan totalling of LS. 34,984,000, was drawn up on a gross basis and therefore includes renewals and replacement investments totalling LS. 6,840,000. Such renewals will of course at the same time often lead to improvements as well.

Finally it should be noted that in the investment total the figure of LS. 7,978,000 is included for " works in progress." This refers to works and orders placed under programmes authorised before the beginning of the Plan period but which have been carried over from that period.

3. ROADS, BRIDGES AND FERRIES

The total investment of LS. 6,500,000 for this catogery can be split as follows :—

TABLE 59

INVESTMENT IN ROADS, BRIDGES, AND FERRIES

	LS. 000
I. Sponsored by the Ministry of Works :	
1. Bridge over the Jur River at Wau	150
2. Widening and strengthening of bridges in Bahr El Ghazal and Equatoria Provinces ..	200
3. Construction and improvement of Dilling—Kadugli Road	500
4. Essential improvements for trunk roads in Southern Provinces	200
5. Survey of new roads	100
6. Minor improvements to roads	200
7. Introduction of modern machinery for road, construction	400
8. Khartoum—Wad Medani Road	250
TOTAL I ..	2,000
II. Sponsored by the Ministry of Local Government :	
1. Ferries	260
2. Road making equipment	200
3. Shambat bridge	2,500
4. Widening of White Nile Bridge	600
5. Others	1,000
TOTAL II ..	4,560

Projects of the Ministry of Works

Bridging the Jur River at Wau is important to link the town with the Eastern part of the Province and to have uninterrupted access to the two outlets to the River. The present system of crossing the River by a ferry does not cope with the present traffic and needs of the province.

Widening and Strengthening of Bridges in Bahr El Ghazal and Equatoria

The bridges on Wau-Rumbek-Mevoto and Wau-Aweil road need to be widened and strengthened in order to cope with the modern tendency of using big trucks with heavy loads. Some of these bridges need to be reconstructed. Many bridges in Equatoria Province are much too narrow to meet the requirements of the new commercial vehicle traffic and many are even too small for Government trucks. Most of these bridges are also not strong enough to carry the modern heavy axle trucks.

Construction and Improvement of the Debeibat—Dilling—Kadugli Road The Debeibat—Dilling section was to be completed before end of June, 1962. The remaining part of the road (Dilling-Kadugli stretch) is scheduled to be completed by 1964/65 with help of the new road plant provided for in the Ten Year Plan.

Improvement of Roads in Equatoria, Bahr El Ghazal and Upper Nile Provinces: Due to heavy increase in traffic and the tendency to use more modern heavy-axle trucks the roads in *Southern Provinces* are deteriorating rapidly. Over many stretches the bottoming is stripped bare and heavy gravelling by mechanical means is essential if these roads are to be preserved.

Survey of New All Weather Roads: A national network of roads has been proposed by the Roads and Communications Board. The Council of Ministers endorsed these recommendations and fixed the priorities as follows:

1.	Khartoum – Port Sudan Road	950	Kilometers
2.	Nyala – Zalingei Road	220	,,
3.	Rabak – Malakal Road	460	,,
4.	Omdurman – Merowe	340	,,
5.	Khartoum – Dueim – Rabak	340	,,
6.	Khartoum – Atbara	340	,,

Roads must be surveyed first from all aspects before any reliable estimates can be given and any construction put in hand. The top priority road *e.g.* Khartoum – Port Sudan has already been surveyed from all aspects *viz.* economic, technical etc. by an American consulting engineering firm, the cost of this survey (about $900,000) was met by the Agency for International Development (AID). The report is under active consideration. In the meantime the Government has given top priority to this project in the additional public investment programme, the execution of part or all of which will depend on the availability of more resources.

With the exception of a few machines, most of the *machinery for road construction* was purchased during 1949/52 and has had its useful working life. Though the LS. 400,000 in the Plan period is required for replacement, yet the opportunity presents itself at the same time to introduce the latest suitable types of machinery so as to cope efficiently with the anticipated expansion in road activities in the coming years.

The amount of LS. 250,000 for the *Khartoum – Wad Medani* road is required to met the cost of land resettlement, supervision and other obligations of the Sudan Government. The capital cost of this demonstration road, roughly estimated at LS. 1.5 million, is being provided on a grant basis by the Agency for International Development.

Projects of Local Government

It has been the practice in the Development Budgets to provide funds for loans and grants to *Local Authorities* for specified purposes. The first four items in the second part of the above table specify such purposes in the field of construction of roads and bridges. The LS. 260,000 for ferries will be used for the purchase of 20 ferries to be allotted to various councils for the improvement of the means of transport between the river banks in many areas of the country. In 1960 22 ferries were obtained through United States Aid and distributed to various councils, their benefits were considerable. The LS. 200,000 for road making equipment is intended to enable Province councils to augment the capacity of Local Government Councils and the Ministry of Works and to carry out minor works.

The Construction of the Shambat Bridge and the Widening of the White Nile Bridge will need about LS. 3,100,000, but the urgency of these projects is most evident in view of the very rapid growth of traffic in the " Three Towns."

The Plan contains a lump sum of LS. 3,500,000 for loans and grants to Local Government for a variety of investment purposes, like administrative and educational buildings, dressing stations, local roads, productive projects etc. Provisionally it has been assumed that LS. 1 million of this amount might be allotted for purposes falling under the heading " roads, bridges, ferries," taken in the widest sense of these words. The remaining LS. 2,500,000 has been taken account of in Chapter VI under " General Administration."

4. SHIPPING

The investment with regard to the harbour facilities has been dealt with earlier in this Chapter under " Railways, river transport, harbours, hotels." The reason is, of course, that such capital formation is part of the Sudan Railways development plan. It also has already been mentioned that investments for the *Sudan Shipping Line* in the Plan period were included under the LS. 32 million private investment in the sector " Transport, Communications and Distribution," because this enterprise is organised as a private Company. Part of the Yougoslav credit to the Sudan has been and will be used for the financing of this Company. It is considered of the greatest importance that Sudan will have this national shipping line in view of the extent to which the country's economy depends on international trade. Two ships, the " Erkowit " and " Sennar " were already bought in the Plan period (investment LS. 1.3 million) and are now at the disposal of the Company. A further two ships are under construction and consideration is being actively given to enlarging the size of this fleet.

5. AIR TRANSPORT

The total public investment for air transport in the Plan period can be detailed as follows :—

TABLE 60

INVESTMENT IN AIR PORTS AND AIR TRANSPORT

I. *Sponsored by Civil Aviation Department :*	
1. Khartoum New Airport	LS. 6,123,000
2. Asoteriba Airport	LS. 1,961,000
3. Internal Airports	LS. 1,500,000
4. Tele-Communication Equipment	LS. 83,000
TOTAL I	LS. 9,667,000
II. *Sponsored by Sudan Airways :*	
1. Purchase of 5 Fokker Aircraft	LS. 1,599,942
2. Purchase of 2 Comets 4C, Others	LS. 2,933,850
TOTAL II	LS. 4,533,792

In Chapter 1 of the Plan, attention was drawn to the rapid growth of the Sudan's national and international aviation in recent years. The sharply rising trend in demand for air traffic will continue in the Plan period, partly also in connection with intensified economic development. To keep pace therewith as well as enhance the efficiency of current air navigation by wider provision of recommended facilities, the Plan proposes the above specified investments in airports, and in their ground and navigational facilities, as well as in the fleet of Sudan Airways.

Khartoum New Airport

The requirements of some of the existing new generation of aircraft and of future aircraft necessitated the study and investigation of the possibility of developing the existing Khartoum Airport and if this should prove impracticable, of developing an alternative site for a New Khartoum International Airport. In either case the facilities provided should be capable of operating the present and future requirements for a period of 15 to 20 years. The investigations have shown that the cost of developing the existing airport would amount to either LS. 5.21 or LS. 5.98 million depending on whether the present runway is extended on its present alignment whilst retaining and extending the existing terminal area or whether the existing runway is extended on its present alignment but with the provisions of a new terminal area. The second alternative is the superior one because it is possible thereby to obtain a properly planned terminal area which would be adequate for many years in the future. The cost of developing a completely new site at Omdurman amounts to LS. 6.12 million. However the existing site has a high market value and it is estimated that at least LS. 3.0 million would be realised if the site was sold. If the additional areas of land which would be sterilized by the extension of runways is taken into account, the direct and indirect benefit to the Government might even amount to about LS. 4.0 million. Accordingly any proposal to develop the existing airport site actually proved appreciably more expensive than developing the new site proposed at Omdurman. Furthermore developing the existing site involves disadvantages in the way of interference with town planning, noise nuisance, buildings within the danger area, and the possible interruption of scheduled services and inconvenience to the public and airline operators during construction. None of these disadvantages would apply to the Omdurman site.

Asoteriba Airport

When Wadi Halfa Airport (which is the only alternative to Khartoum in case of emergency) is submerged by the flooding effects of the High Dam, a new alternative airport will become essential. Asoteriba near Port Sudan has been destined for this purpose. The third item in the table, *viz.* LS. 1.5 million for ***internal airports*** (El Obeid, El Fasher, El Geneina, Juba, Wad Medani, Kassala Airports), together with Khartoum New Airport and Asoteriba Airport, covers a network of aerodromes adequate to meet the needs of civil aviation and national defence for a larger number of years. It also takes account of the fact that at places where economic development schemes are undertaken construction or improvement of airfields soon becomes a necessity.

The last item of the Civil Aviation Department's investments, *viz*: LS. 83,000 ***Tele-communication equipment*** involves the purchase of installations for radio navigational aid and for direct air control service. In accordance with I.C.A.O. recommendations, the present morse system will be abolished and the new equipment should be installed in the course of 1963 when all craft using Sudan Ports and air space will be equipped with the new apparatus.

Sudan Airways

There is, of course, a certain relationship between the planned investments in air fields and those in aircraft. The extension of Sudan Airways domestic services and the modernization of its fleet must go hand in hand with the construction of new air fields at places where economic development is taking place and with improvements of existing air fields elsewhere to take modern aircraft.

In its international operations Sudan Airways will open new routes to Europe, the Middle East and some African countries. It is anticipated furthermore that Sudan Airways will share in the movements of technical personnel between the Sudan and Europe created by the execution of development schemes. Sudan Airways will also share in the expected increase in tourist travel.

Sudan Airways is operating as a Government Department with its revenue and expenditure shown in the Central Budget. In 1960/61 it had a fleet consisting of one Vickers Viscount, seven Dakotas and three Doves. In 1961/62, three Fokker Friendship turbo-prop aircraft were purchased to take over regular services hitherto flown by Dakotas. The capital expenditure still required for instalment payments on the purchase of these three aircraft is included in the above table as well as the amount needed for the purchase of the two additional Fokkers and of two Comets 4C Jetliners.

6. POSTS, TELEGRAPHS AND TELEPHONES

The investments in communications as enumerated below emphasizes two aspects. First, the need to provide new P. & T. services wherever they are needed for commerce, for economic activity in general, for administration and for security. Second, the expansion of existing services to meet growth in demand. The latter should normally be remunerative in the economic sense; the former cannot always be so. The investments for interim P. & T. development in the South, schemes for the Red Sea Coast and Dongola Area fall for instance into the first category; in the second category are found investments in expansion of the trunk telephone net work, extensions to the urban telephone exchanges, introduction of subscriber trunk dialling and buildings of various new offices. The planned investment total of LS. 2,712,617 involves 50 per cent foreign exchange expenditure. The *extension and improvement of the telephone services* will absorb the largest part of the total capital formation and the various projects in this field will be listed first:

(a) *Expansion of Telephone Trunk Network*:

Sennar-Kosti Trunk Cable to relieve congestion on trunk circuit to the West and South	LS.	44,000
Khartoum-Atbara Trunk cable to provide more circuits between Khartoum and Port Sudan via Atbara ..	LS.	135,200

Dongola Loop telephone trunk to connect Dongola, Karima, Argo, Kerma, Delgo and Abri where, as a result of this connection, other villages on the River Bank may be given call boxes or small exchanges as demand arises	LS.	73,400
Red Sea Coast tele-communications to provide a trunk telephone 'Artery' along the Red Sea Coast which almost devoid of telephone and telegraph communications	LS.	187,800
Kosti-El Obeid trunk cable to expand that trunk route in order to connect between the towns of Kosti-El Obeid, Kosti-Um Ruaba, El Obeid-Um Ruaba, Kosti-Tendalti and El Obeid-Rahad	LS.	122,000
Re-arrangement of the open wire carrier equipment as a natural consequence of the conversion of the major trunk routes in Central Sudan to cable	LS.	23,050

(*b*) *Extension to Main Automatic Exchanges*:

Extension to main automatic exchanges in Khartoum, Omdurman, Khartoum North in order to cater for the rapidly increasing demand for telephone services. On completion, telephone services will increase by over 60 per cent, total line capacity will be 30,000 instead of 18,580	LS.	592,500
Subscribers trunk dialling service: this scheme will enable a limited number of subscribers (800) to dial direct any number at Khartoum, Port Sudan, Atbara, Wad Medani, Kosti and El Obeid	LS.	24,000
Automatisation programme for Kassala, Juba, Nyala, Fasher and Gedaref to provide for expansion in telephone services in each of these towns	LS.	112,000
Telephone development in rural area: the telephone services in these places are usually provided by means of small agency operated exchanges or public call boxes but it is both economical and beneficial to change these to automatic systems	LS.	70,000

(*c*) *Telephone Underground Cables for Subscribers Distribution to Supplement the Telephone Exchange Growth*:

The "Three Towns"	LS.	503,700
Wad Medani, Port Sudan, Atbara, Shendi, El Obeid, Juba, Malakal, Kosti	LS.	140,600

(*d*) *Radio Telephone Links in Southern Sudan between the More Important Centres*	LS.	40,650

(*e*) *Nautical and Aero-Nautical Radio Telephony Services*:

Aeradio service teleprinter links to Cairo/Malta	LS.	18,360

Replacement of present WT ground-to-air by HF-radio-telephony	LS.	42,560
Enlarging the range capacity of Port Sudan nautical installation	LS.	16,500
(*f*) *Radio Monitoring Station*: to check transmitters and find out new frequencies for expansion	LS.	25,950
(*g*) *Telegraph*, extension of services	LS.	62,750
(*h*) *New Post and Telegraph Offices, etc.*		
New offices for Torit, Juba, Geneina, Sennar, Kassala (first floor), Khartoum North, Malakal	LS.	107,660
Establishment of 42 new one-man P. and T. Offices	LS.	186,060
New workshop and offices at Rumeila	LS.	40,000
New garages	LS.	20,000
Building for staff training school	LS.	39,268
District staff housing	LS.	15,600
Printing machinery, mechanization of accounts	LS.	31,960
Private letter boxes	LS.	36,449

7. METEOROLOGICAL SERVICES

The investment plan of the Meteorological Service Department aims at a reasonable expansion in such services in all parts of the country so as (a) to meet all essential requirements in this field and (b) to discharge all the obligations of the country as a member of the World Meteorological Organization and as a member of the International Civil Aviation Organization. Behind the scheme lies consideration of the geographical situation of the Sudan as a massive link between the Middle East, East and West African countries.

It goes without saying that aviation both local and international, civil and military depends for its security, comfort and economic functioning on the provision of adequate meteorological services which are also of importance with respect to decisions on the location of air fields and runways. In the field of agriculture the study of crop-weather relations may lead to great improvements in both quality and quantity of products. Equally, weather studies are of course of great importance in animal husbandry, land use (hydrometorological studies), communications, health, town planning, etc.

The total ten years investments of LS. 394,000 consist of the following projects :—

TABLE 61

INVESTMENTS FOR METEOROLOGICAL SERVICES

1961 62—1970 71

	LS. 000
Two radiosonde stations	48
Six 1st class meteorological stations	81
Meteorological training	79
Six agro-met. stations	75
Two weather radars	38
Buildings	37
Equipment	30
Rain gauges	6
TOTAL	394

In addition new Headquarters offices for the Department have been provided for in the multi-storey office block for the Economic Planning Secretariat, the investment for which building is included in Chapter VI.

8. PUBLIC MECHANICAL TRANSPORT

Under this heading fall, first of all, the investments of the Mechanical Transport Department, which is responsible for the supply and maintenance of Government cars, lorries and other vehicles.

The total investment of the Mechanical Transport Department in the Plan period is assessed at LS. 979,000 to be specified as follows :—

TABLE 62

INVESTMENTS BY MECHANICAL TRANSPORT DEPARTMENT IN THE PLAN PERIOD

	LS. 000
Main base workshops : expansion and development	39
Establishment of 2 advanced base workshops at Juba and El Obeid	110
Resiting, rebuilding and expansion of out-stations workshops	260
Mobile workshops	68
Development of stores services	120
Expansion of fuel supplies	12
Training facilities	40
Expansion of M.T.D. Khartoum pool	100
Expansion of H.Q. Staff, recommendation and new H.Q. Building	80
Expansion of Department's fleet of vehicles	50
Housing in outstations	100
TOTAL	979

The first objective is to increase the capacity of Mechanical Transport Department to 10,000 vehicles of all kinds; this will go accompanied by a policy aiming at the progressive "dieselisation" of vehicles in order to reduce running costs. It will also go hand in hand with an expansion and development of workshops and stores. This is the more desirable as at present backlogs and delays may occur, especially in outstations, in repairs and other workshop services.

The existing workshops structure consists first of all of a *Base Workshop at Khartoum* for assembly, reconditioning and major overhauls and heavy repairs. The assembly capacity will be doubled from 75 to 150 vehicles per month.

At the same time it is necessary to decentralize the reconditioning, overhauling and repairs on a regional basis. The second and third projects in the above investment table are planned for this purpose. At present all major repairs have to be done in Khartoum. It is now proposed *to upgrade the existing workshops at Juba and El Obeid* so that they will be capable of undertaking complete engine and vehicle reconditioning as well as all types of repairs; they will also be equipped to handle the dieselisation programme.

In addition to upgrading these two workshops, it will be necessary to expand all the remaining *Outstation Workshops* so that they may be able to cope with the anticipated expansion of the Government fleet from 6,232 to 10,000 vehicles. Some of these workshops will also be upgraded so as to be able to carry out repairs they do not undertake at the present time. Moreover, eight additional *Mobile Repair Units* are proposed for the Plan period for carrying out repair to vehicles at long distances from main workshops. Benefits of such mobile units have been unquestionably demonstrated.

The anticipated expansion in the fleet of vehicles will in itself entail the handling of a larger volume of stores. The scheme "*Development of Stores Services*" provides for expansion of the Base Stores, Khartoum and the Advanced Base Stores at Juba and the establishment of a New Advanced Base Stores at El Obeid.

The LS. 12,000 for the scheme "Expansion of Fuel Supplies" will be spent in the installation of five fuel pumps at five outstation workshops. The erection of these pumps will mean lower prices for petrol and diesel fuel as well as stricter control over the issue of fuels.

A most important scheme is the expansion of *Mechanical Transport Department Training Facilities* to cope with a greater number of students of all categories (electricians, mechanics, drivers, etc.).

This programme includes the expansion of the existing school at Khartoum, the establishment of a Trade School at Juba and a Stores School in Khartoum.

The *Expansion of Mechanical Transport Department, Khartoum Pool and of the Mechanical Transport Department's fleet of vehicles* provides for an additional 73 vehicles and for the building of a garage equipped with servicing facilities. The increase in the M.T. Pool is necessitated by the increasing number of foreign visitors and delegations.

The increase in the Department's responsibilities will require the expansion of its *Headquarters Buildings and of Housing in its Outstation Workshops.*

The table at the beginning of this Chapter shows an amount of LS. 200,000 investment to be sponsored by *Local Government*. This amount will be made available on a grant basis to the Khartoum Province Transport Committee for the purchase of buses for public transport.

9. WAREHOUSES, SILOS AND STORES

The public sector will play a leading role in the development of distributional facilities in the Plan period. A general expose of the aspects of marketing agricultural commodities can be found in point 8 of Chapter III.

A sum of LS. 360,000 will be invested by the *Department of Agriculture* to set up 8 warehouses, four at Port Sudan, three in Nuba Mountains and one at Gedaref, to avoid damage to the cotton crop while awaiting transport.

The Agricultural Bank is to set up *two silos*, one at Gedaref and the other at Port Sudan, with a capacity of 100,000 tons and 50,000 tons respectively. A provision of LS. 2,311,000 has been made for the construction of these silos. The Agricultural Bank and the Sudan Railways will be setting up warehouses at big railway centres and near private ginneries. The funds required for these warehouses are included in the investment totals for the Bank and the Railways in Chapter III and in Chapter IV Section 2 respectively.

Finally it should be mentioned that the *Customs Department* will invest LS. 36,000 in the Plan period for the Wad Medani and Kassala Sugar Stores.

10. PRIVATE INVESTMENT

The development of transportation and communication facilities often depends to a large extent on public investments and the larger part of this Chapter has therefore dealt with the public sector. This is not to say of course that private investment is unimportant as the figure in the summarising investment table of this Chapter clearly shows.

It is expected that net private investment in the transport sector might reach a total of LS. 32 million for the whole Plan period or on an average some LS. 3.2 million per annum on a net basis (thus excluding replacements). This estimate seems in line with recent developments. *Gross* private investment in transport, etc., showed a sharp upward trend from 1955/56 onwards and reached a value of LS. 2.1 million in 1959/60. Indications are that the figure for 1960/61 will again be higher. It is safe to assume that the trend of these investments will continue to rise in the Plan period pari passu with the growth of economic activity in general. Furthermore there is no doubt that if the additional programme project, the Khartoum – Port Sudan Road, is carried out, it will have considerable additional effects on private investments in trucks etc ; though such effects might not all be felt until after the first Plan period as the building of the road may require some five years.

It should be mentioned that the estimated total of LS. 32 million for net private investment refers not only to investments in transport but also in distribution. Thus it includes expectations with regard to investments in commercial undertakings. For statistical reasons, however, it is as yet impossible to give separate figures for transport and for distribution.

CHAPTER VI

EDUCATION, OTHER SOCIAL SERVICES AND GENERAL ADMINISTRATION

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CHAPTER VI

EDUCATION, OTHER SOCIAL SERVICES AND GENERAL ADMINISTRATION

1. GENERAL

The main underlying principles for the allocation of investment funds to this broad sector have been explained in Chapter II. In the present Chapter the separate projects covered by the public investment total of LS. 90 million allocated to this sector will be summed up and particulars about such projects will be brought to the fore. First of all, a division of the investment total over a number of categories is given in the following table.

TABLE 63

INVESTMENT IN SECTOR "EDUCATION, SOCIAL SERVICES, AND GENERAL ADMINISTRATION."

Category	Sponsor	Sub Total I.S. 000	Total I.S. 000
I. Public Investment (1)			
1. Education	Ministry of Education	32,896	
	University of Khartoum	2,981	
	Religious Affairs Dept.	771	36,648
2. Health	Ministry of Health		8,437
3. Housing	Ministry of Interior	1,000	
	Ministry of Local Govt.	900	
	Wadi Halfa Resettlement Commission (2)	20,000	
	Ministry of Works, Building Research	74	21,974
4. Labour Affairs and Information	Ministry of Information and Labour		1,211
5. Community Development and Co-operation	Ministry of Local Govt.	100	
	Co-operation Dept.	171	271
6. Security (Police and Prisons)	Sudan Police	2,250	
	Prison Dept.	1,250	3,500
7. Local Administration	Ministry of Local Govt. (3)		3,079
8. Survey	Survey Dept.		1,635
9. Statistics	Dept. of Statistics		574
10. Buildings for General Administration	(4)		2,255
11. Miscellaneous	Ministry of Finance and Economics		10,466
Total I			90,070
II. Private Investment, Net (5)			60,000
Grand Total I + II			150,070

(1) Excluding the I.S. 8.5 million "Additional Programme, Investment" see Chapter II.

(2) Mostly housing.

(3) Total investment of Ministry of Local Government is planned at I.S. 10,689,000 but the larger part of this amount has been distributed over other sectors or categories.

(4) See detailed table in text.

(5) Mainly housing; the amount also includes capital formation for private education, etc.

2. EDUCATION

The proposed investment of LS. 32,896,110 is related to the introduction of the new educational policy in the Sudan. This educational re-organisation will raise our academic and technical standards to those enjoyed in most advanced countries, without sacrificing the conventional and traditional qualities of our country. The new educational ladder will consist of three stages; *viz.* a primary school of six years followed by a general secondary stage of four years and further by a senior secondary of three years at the end of which students sit for the School Certificate Ordinary Level. Qualified candidates who attain certain standards proceed to a further year in the Senior High School. There is another final examination at the end of this year for the School Certificate Advanced Level, which will be equivalent to the present preliminary examination of the University of Khartoum. The new educational ladder introduced a six year primary school, because it is at the primary stage that the vast majority of the citizens of the nation will receive their education and prepare themselves for life. The general secondary school aims at the promotion of academic, practical and physical attainments and to prepare citizens for the requirements of life beyond the school walls. Those who excel and proceed to the higher stage of education will do so better qualified and more mature to derive fuller benefits from their senior secondary school education. The curriculum in the general secondary school is a combination of academic and vocational training. The latter will be geared to the practical needs of the respective localities of the country, including such studies as agriculture, rural science, commerce, etc. In the case of girls, general secondary schools vocational subjects will include domestic science in addition to the training in local industries performed by Sudanese women. As for the Technical General Secondary School it will pursue more or less a technical approach as it name suggests. The higher secondary school is a stage for specialization in the different branches of learning. There will be the academic secondary school for boys, the academic secondary school for girls, the technical secondary school and the vocational secondary with its different branches *i.e.*, agriculture secondary, commercial secondary and the domestic science secondary school for girls. The final higher secondary school certificate qualifies its holders for application to the University and higher institutes of learning, while the higher technical certificate prepares its holders for the Khartoum Technical Institute.

Those who complete the vocational secondary schools will usually go out to practical life fairly equipped in their fields of specialization, be it agriculture, commerce or otherwise. Graduates of vocational schools who may like to continue their studies and who are fit to do so will continue in higher institutes of their respective disciplines. The Plan aims at the improvement of primary education both in quality and quantity with corresponding improvements at subsequent levels as it proceeds. The present chances of obtaining a full elementary education are 18.4 per cent for boys and 8.7 per cent for girls. By the end of the Plan the rate of enrolment for primary education will rise to 42 per cent for boys and 18.5 per cent for girls. To bring this about the existing sub-grade schools will be up-graded to full primary level and an additional 420 primary schools will be established. At the general secondary level the chances for both academic and technical education will be at the average 13.3 per cent for boys and 8.4 per cent for girls compared with the present chances of enrolment into intermediate schools which are 17.1 per cent for boys and 9 per cent for girls for both academic and technical schools. It is proposed to open

16 additional schools every year. It will be noticed that this represents a real rise in educational opportunities because these rates will apply to pupils who have already completed six years and not four years as at present. In fact the rate of enrolment for the year which is equivalent to the present first year intermediate will be 42 per cent for boys and 18.5 per cent for girls and the small decline of chances will only take place in the year equivalent to the present third year intermediate. As regards the senior secondary education, academic and technical, it is proposed to raise the intake from 34.4 per cent for boys and 25.6 per cent for girls in 1961/62 to approximately 52 per cent and 41 per cent respectively by the end of the Plan. The increase is intended to cater for the demands of higher educational institutions necessitated by the development of the Country. The new educational plan also aims at improving teacher training for all levels of our schools. Such an improvement will include both the raising of the academic calibre of our teachers and also the training for the profession. The more care that is put in the training of teachers the higher will the achievement of our children be in the academic, moral and cultural fields. The new Plan aims deliberately at preparing teachers who will fulfil this huge task in the framework of the expanding educational system. To provide the teachers needed for the proposed expansion at the different levels, six Primary School Teachers' Training Institutes, one General Secondary Teachers' Institute and one Senior Secondary Teachers' Training Institute will be started. Due to the acute need of the country for technical staff, the Plan lays stress on expansion and improvement of technical education. It is proposed to set up 36 Technical General Schools, 10 Trade Schools, one Senior Technical School, one Technical Institute for Higher Technical Education and one Institute for foreign languages. In Chapter II of the Plan estimates have been given with respect to the requirements of the Plan for skilled labour and the expected forthcoming, supply of such labour. The supply table takes account of course of the through-flows of graduates from one level to another. Table 64 however shows the expected numbers of graduates from technical schools before through-flows excluding Shambat Agricultural Institute and University of Khartoum. A Higher Institute for Arabic and Religious Studies will be established to provide specialised courses in Arabic and Islamic Studies. Finally it must be remarked that to satisfy wholly even the scaled-down requirements of the Ministry of Education an additional investment of some LS. 8.5 million would have been needed. As stated earlier the LS. 32.9 million now proposed was of necessity the outcome of a compromise in the allocation of funds between the economic and the social objectives of the Plan. However, LS. 8.5 million for education has been included in the "Additional Public Government Programme" the execution of which will depend on the possibility or otherwise of raising Government resources (See last section of Chapter II).

TABLE 64

EXPECTED NUMBER OF GRADUATES FROM TECHNICAL SCHOOLS (ALL LEVELS)

1961–1970

Level and Type of Education	1961 1962	1962 1963	1963 1964	1964 1965	1965 1966	1966 1967	1967 1968	1968 1969	1969 1970	1970 1971
All Levels	615	710	1,040	1,012	1,250	1,501	1,760	2,020	2,315	2,645
Intermediate Technical Schools	392	420	563	635	740	860	980	1,100	1,220	1,340
Trade School (Post Intermediate)	106	127	190	210	245	280	315	350	385	420
Secondary Schools	97	66	106	71	110	175	245	280	350	385
Higher Technical Education	20	101	181	96	184	186	220	290	360	500

It should also be mentioned that some of the major individual projects like Managil and Wadi Halfa Resettlement, include provisions for school buildings.

A provision of LS. 2,980,765 has been made in the Plan for investments by the University of Khartoum. This amount is to be spent as follows :—

Administration	LS.	1,160,000
Faculty of Agriculture	LS.	75,000
University Farm	LS.	31,765
Faculty of Arts	LS.	60,000
Faculty of Engineering	LS.	407,000
Faculty of Medicine	LS.	125,000
Faculty of Science	LS.	269,500
Faculty of Veterinary Science	LS.	127,000
Library	LS.	25,500
Miscellaneous	LS.	700,000

The enrolment in the University is expected to increase from 1,500 in 1961/62 to 3,000 by 1970/71. The biggest increase in intake will be in the Faculty of Science from 235 in 1960 to 336 in 1962 and to 400 in 1963 rising thereafter to 480. In the Faculty of Engineering and Architecture, the intention is to step up the ultimate intake to 200 per year. It is anticipated that the intake will reach 150 in 1967/68 rising to 200 in 1970. Two new Departments a Department of Horticulture and a Department of Forestry will be established in the Faculty of Agriculture. A new section in Town Planning and Building Projects is provided for in the Faculty of Engineering. A Department of Pharmacy will be started in the Faculty of Medicine. With the increase in intake and expansion of Faculties, considerable progress will be made in meeting the requirements of the Plan for highly qualified personnel (see also Chapter II).

The following table indicates the expected number of graduates from various faculties by 1970 71.

TABLE 65

EXPECTED NUMBER OF GRADUATES

	1961/62	62/63	63/64	64/65	65/66	66/67	67/68	68/69	69/70	70/71
Arts	46	55	76	90	115	120	130	130	130	130
Economics and Social Studies	38	46	65	76	100	100	100	100	120	120
Law	27	11	25	25	30	35	35	35	35	35
Science	24	29	39	59	86	111	123	126	126	126
Agriculture	16	9	7	10	16	30	30	30	30	30
Engineering and Architecture	19	34	39	40	60	60	75	80	95	95
Medicine	27	34	30	33	41	50	50	50	50	50
Veterinary	6	9	15	12	10	20	20	20	20	20
TOTAL	203	227	296	345	461	526	563	571	606	606

The investment plan of the *Religious Affairs Department* consists of the completion of 3 Maahads (Religious School) in Juba, Kodok and Wau as well as the construction of 8 Maahads in Maridi, Yei, Beybour Fanjak, Torit, Raja, Aweil and a Secondary Maahad at Juba. The total capital costs would be LS. 465,000. Furthermore, LS. 154,482 will be provided in the Plan period for completion and improvement of various existing Maahads. Four religious guidance centres will be built in Kormuk, Heyban, Aroma and Malakal for spread of religious knowledge and Islamic teachings is these areas where the Moslem population lacks such a facility.

It should be mentioned that the teaching activities of the Religious Affairs Department are not at all confined to religious knowledge. The educational ladder of the Maahads is similar to that of the Ministry of Education and the curricula include a lot of similar subjects so that in fact Maahad students can sit for examinations for the various educational stages of the Ministry of Education.

3. HEALTH

The following is a distribution of the total Ten Year Plan investment by the Ministry of Health and Province Council:

Hospitals and Extension to Hospitals	LS. 3,628,950
Dispensaries and Extension to Dispensaries	LS. 556,000
Midwives Training School	LS. 232,500
Public Health Officers and Laboratories	LS. 650,000
Housing and Hostels	LS. 1,597,000
Health Centres and Public Health Offices	LS. 516,000
Medical Equipment and Fittings	LS. 963,625
Mechanical Transport	LS. 292,880
TOTAL	LS. 8,436,955

The Plan provides for expansion of medical and public health facilities in all parts of the country. It is proposed to establish 31 new hospitals and expand and improve the existing ones. This number includes specialised hospitals such as Maternity and Child Diseases Hospitals in some of the big towns, etc. The extension to existing hospitals will include the establishment of Psychiatric Units in hospitals at Province Headquarters. The present number of equipped beds in hospitals is about 9,453. Under the Plan this will be raised to 12,763 or an increase of over one third. The number of dispensaries will increase by 150 from 552 to 702 so that there will be a dispensary for every 21,000 people of the population. The number of schools for training nurses and midwives will be more than doubled. With the increase in trained midwives there will be one midwife for every 5,000 of the population. It is the intention to have one well equipped clinical laboratory in every province hospital as well as to expand substantially, improve and modernize the central laboratory for research.

The Plan aims at increasing the Health Centres from their present number of 39 to 105 in order to relieve the pressure on existing Health Centres, and to extend the services of such Centres to include maternity, child welfare and health education among mothers, with a view to reducing maternal and infant mortality.

The number of Public Health Offices will be increased considerably. The Plan also envisages the creation of new Divisions in the Headquarters of the Ministry of Health to cater for Occupational Health Service, Environmental Sanitation, Maternity and Child Welfare, School Health Service, Nutrition, Control of Endemic and Epidemic Diseases and Malaria Eradication. The establishment of such divisions besides improving public health services, will help to effect a link between the health projects and the other economic and social projects envisaged in the Plan.

The following table indicates the progress in medical and health facilities envisaged in the Plan of the Ministry of Health plus the hospitals and dispensaries which are provided in provisions for such projects as Managil, Roseires and Khashm El Girba.

TABLE 66

PROGRESS OF MEDICAL AND HEALTH FACILITIES

	1960 61	1970 71
No. of Hospitals	68	102
No. of Dispensaries	552	738
No. of Hospital Beds	9,430	13,065
No. of Health Centres	39	105
No. of Midwives Training Schools	8	16

4. Housing

The growth of population and economic development creates difficult problems of housing. In fact it is a problem confronting all developing countries. It is in urban areas particularly that housing accommodation becomes a major problem due to industrialization and migration from rural areas.

It may be expected that the traditional type of housing in rural areas will develop pari passu with population. Investment in this housing does not figure in the above table because it only deals with modern type of investment. In Chapter II of the Plan it has been mentioned how the Government will support the development of traditional housing. It has also been pointed out in the same place that, though modern type of house building will have to rely to a considerable extent on private funds (it is expected that some LS. 55 million may be invested which will be in line with recent experience), the Government will play an important role in this field.

The emphasis in Government's intentions is on the provision of housing for low income groups and for the displaced persons from Wadi Halfa. *A National Housing Scheme* has been formulated for providing suitable housing accommodation for the working class whose steady increase is quite noticeable especially in Khartoum North due to the spread of industrialisation.

A provision of LS. 900,000 has been made in the Plan for the purpose as the houses built in this way will be sold on easy instalment terms, the provision will be a revolving one. This amount falls under the sponsorship of the Ministry of Local Government, National Housing Authority.

Furthermore it is proposed to dispose by auctions of sufficient plots in the big towns to private citizens, officials and employees and workers with low incomes. The establishment of building societies or other financial institutions to help finance house building is being studied. As the present situation in the Three Towns in respect of Government housing is unsatisfactory, 80 new apartments were recently constructed by the Government with U.S. Aid and a further similar number is under construction on the same terms. Although this will help to alleviate the situation, it will not solve it. For providing the necessary accommodation for Government officials, expatriates and Sudanese, married and bachelors, a programme of staff-housing for the Three Towns has been envisaged, for which a provision of LS. 1.0 million has been made in the Plan. An amount of LS. 74,000 was allocated to the Ministry of Works for research in the field of building materials, etc.

For resettlement of Wadi Halfa people, the Government has assumed responsibility for constructing suitable houses in Khashm El Girba. The required funds constitute the major part of the LS. 20 million allocated for resettlement on top of LS. 14.5 million included under Agriculture for dam construction, irrigation and associated works at Khashm El Girba.

5. LABOUR AFFAIRS AND INFORMATION

All investments under this heading will be sponsored by the Ministry of Information and Labour. They can be specified as follows:—

	LS.
Labour Department	
Headquarters	10,000
Regional Labour Offices	120,000
Vocational Training Centres	370,000
	500,000
Information Department	
Broadcasting	40,260
Information Services	46,120
Sudan Film Unit	128,374
Mobile Cinemas	80,400
Photographic Section	6,000
Tourist Section	80,000
Sports Section:	
(a) Promotion of Sports	250,000
(b) Playing Grounds	80,000
	711,154

The Labour Department's ten year investment for *headquarters* and *regional offices* are based on the increase of labour affairs resulting from economic growth in the Plan period, notably from the considerable industrialization programme embodied in the Plan as well as from the huge agricultural schemes involving tenants and labour.

In Chapter II of the Plan, when dealing with the large requirements for skilled labour, the great importanc of vocational *training* has been stressed. The investment of LS. 370,000 by the Labour Department for this purpose aims at the further development of the vocational centre at Khartoum and at the opening of four new centres one in Port Sudan and one at Wad Medani. The location of the other two is under consideration. When the programme is completed, the total enrolment will be about 800, and the annual output of trained craftsmen about 2,000 divided among such trades as diesel mechanics, plumbing, electrical installation, carpentry, brick laying, etc.

The Ten Year Investment Plan of the Department of Information in the field of *broadcasting* provides for establishing a new national transmission area at Soba to increase Arabic services and to reach all parts of Sudan by day as well as to increase other programmes (*e.g.* Southern and English) and to provide more effective overseas service. The *Information Service* investment of LS. 46,120 will provide all provincial headquarters with properly staffed and equipped information units. The *Sudan Film Unit* plan, entailing a capital cost of LS. 128,374, aims at building a compact air conditioned unit outside the town to replace the present inadequate location at headquarters, furthermore some new—foreign exchange saving—equipment will be purchased. Improved studios and equipment for the *Photographic Section* calls for LS. 6,000 in the Plan period. The *Mobile Cinema Section* will spend its allocation of LS. 80,400 to increase the number of mobile cinemas from 25 to 43 units, with the aim of raising its annual audience to 5 million by the end of the Plan period. In order to establish properly the *Tourist Section* and to provide for some rest houses in the principal tourist areas, capital expenditure of LS. 80,000 will be required. The recently established *Sports Section* will in the Plan period have available LS. 320,000 for investment in a gymnasium, eight model national playing fields in all provincial headquarters and nine (demonstration) children's playing grounds. Both playing fields and playgrounds will be handed over to Local Authorities as models.

6. COMMUNITY DEVELOPMENT AND CO-OPERATION

Community Development (Local Government) calls for investment of LS. 100,000 in the Plan period. It is increasingly realised that the success of the development programme hinges heavily on the stimulation of rural communities. It is only when they become aware of the development efforts and are induced to take individual and co-operative action in promoting their welfare that general progress is accelerated. To stimulate such action and to co-ordinate it with that of the Government, a pilot project in community development is proposed to be started in Khartoum North Rural Council, and based on the experience gained there, more pilot projects will be started from 1963 onwards.

During its comparatively recent existence the *Co-operation Department* has been active in the field of marketing, processing of crops and assistance in securing credit for small and medium agricultural producers. There can be no doubt that the Department will have an important role in the future development of rural agriculture by raising the productivity of the small farmers, freeing them from indebtedness and ensuring that they get fair prices for their produce. It should also play an important part in the mobilization of small savings.

The number of Co-operative societies now in existence is well over 600 and it is estimated that this number will reach 800 in 1968. This however depends mainly on vigorous efforts in propaganda, publicity and education as well as adequate control and supervision by the Department. For office and housing accomodation for the planned increases in staff LS. 170,000 has been allocated, as well as LS. 45,000 for capital costs of mechanical transport; a sum of LS. 6,000 has also been allocated for technical equipment, mainly intended for educational purposes.

7. SECURITY

Total investment under this heading will amount to LS. 3.5 million in the Plan period. It should be borne in mind that in this amount the capital costs for Defence (The Armed Forces) are not included. Planning techniques require that such costs, in view of their very special nature, should be considered as current costs; therefore they are not embodied in the investment programme but will be catered for in the ordinary budget.

The other investments in this category contain first LS. 2,250,000 for the *Sudan Police*, for police housing, stations and posts, training centres and stables, clubs and recreation centres as well as technical equipment and motor transport. The Department plan is based on achieving a moderate expansion of the force commensurate with the growth and distribution of population and to make good existing deficiencies. Furthermore the Plan aims at effecting various improvements in police methods and facilities appropriate to present day conditions.

The investment amount of LS. 1,250,000 for *prisons* covers capital costs of buildings, productive schemes, mechanical transport and prison education.

The Plan is designed to continue policies successfully adopted in recent years. Since 1956 this policy has shifted towards modern Anglo-American methods of penology with more emphasis on reform, useful training, productive employment and moral rehabilitation. The basis of this policy is segregation of different types of prisoners, particularly first offenders and others, from recidivists, and the provision of adequate facilities for education, training and employment. Segregation of recidivists from first offenders has been achieved already but there is serious overcrowding of the central prison as a result. There are also no separate prisons for women or mentally deranged prisoners and the number of the latter is increasing *e.g.* from 203 in 1955/56 to 521 in 1960/61.

Juvenile delinquency is increasing *e.g.* from 228 in 1955/56 to 398 in 1960/61 and two reformatories have been established with good results but more are needed.

Prison industries and farms have expanded rapidly contributing LS. 44,015 to prison revenue in 1960/61 compared with LS. 8,069 in 1955/56. Further development is required in order to increase the self-sufficiency of prisons in foodstuffs, clothing, etc. and to provide constructive employment for prisoners.

With the new system of provincial administration all prisons are being brought under central control. The Plan provides for overdue improvements in provincial prisons *e.g.* either by modifications and extension or by building new prisons. To reduce costs and to keep prisoners of similar cultural levels together the policy is being adopted of holding prisoners in their own regions. This and the need for facilities for proper treatment necessitates the improvement of the old prisons and the construction of new camps, etc. Additional transport is also required to meet existing deficiencies and to provide for the need of expansion in productive schemes.

8. LOCAL ADMINISTRATION

In the planned investments for the period 1961/62—1970/71 LS. 10,689,000 has been allocated for Local Government purposes. This will be distributed between various social, economic and administrative activities. As far as possible the above amount has been distributed over the sectoral groups of investments. As a recapitulation the following table shows the distribution.

TABLE 67

PROJECTS	LOCAL GOVERNMENT INVESTMENT	LS. 000
	Included in Plan Under Sector Heading	
1. National Housing	Sector Education, Social Services, General Administration, Category " Housing "	900
2. Community Development	Same Sector, Category " Others "	100
3. Khartoum Street lighting	Same Sector, Category "Local Administration "	179
4. Khartoum North Sewage, Local Currency	Same Sector, Category "Local Administration "	400
5. Loans and Grants: : (a)	Same Sector, Category "Local Administration "	2,500
(b)	Sector Transport, etc.	1,000
6. Ferries	,, ,, ,,	260
7. Road Making Equipment	,, ,, ,,	200
8. Buses for Three Towns	,, ,, ,,	200
9. Shambat Bridge	,, ,, ,,	2,500
10. Widening White Nile Bridge	,, ,, ,,	600
11. Public Utilities	Sector Industry, etc.	1,600
12. Building for Khartoum Municipal Council	Sector Education, Social Services, and General Administration Category "G.A. Building "	250

The total investment of LS. 3,079,000 mentioned under the heading "Local Administration" in the first table of this Chapter refers only to items 3, 4 and 5 (a) of the above table.

First of all it should be stressed that the distribution of the general items "*Loans and Grants*" *viz.* LS. 3.5 million over transport and " Local Administration " is a very provisional one subject to further decisions by the Ministry of Local Government. The whole amount of LS. 3,500 000 is in fact an arbitrary tentative lump sum provision for loan and grant to local authorities and the new provincial administration to cater for some purposes already agreed and for new ones to be agreed upon as well as the terms and conditions for the same.

The other two schemes which could not easily be classified under other specific headings are "*Khartoum Street Lighting*" and "*Khartoum North Sewage.* The first stage of the sewage project is designed to cater for waste disposal of the heavy Industrial Area.

9. SURVEY

The Survey Department was allocated LS. 1,635,000 in the Plan period for the following purposes.

	LS.
Triangulation	636,000
Trilateration and Traverse	279,000
Precise Levelling	175,000
Topographical Surveys	265,000
Drawing and Printing of Topographical Maps	170,000
Computation and Equipment	110,000
TOTAL	1,635,000

One of the main functions of the Survey Department is to map up the Country. This task is considered to be of great importance for the future development of the country since it provides the essential information needed for many developmental schemes embodied in the Ten Year Plan and under consideration for later execution.

The objectives of the Department for the near future can be summarized as follows : —

(a) To cover the whole country with well spaced nets of horizontal and vertical control points.

(b) To prepare topographical maps on scale 1/100,000 for an area of approximately 154,000 square kilometres which is slightly more than one tenth of the area of the Sudan.

(c) To train professional surveyors to take over from expatriates.

The capital costs for geological survey work have been dealt with in Chapter IV of the Plan where the prospects for mining were discussed.

10. STATISTICS

The predominant importance of adequate and reliable statistical data for planning and other purposes need hardly be stressed. Though much progress has been made in this field in recent years, the inadequacy of the statistical basis has caused grave difficulties in the process of formulation of the present Plan. With its projected expansion, the development of statistics will be able gradually to put at the disposal of the planning authorities in the course of the Plan period supplementary data that will be useful in reassessing certain projections and to appraise the progress of the Plan in various sectors.

The capital costs involved in the expansion of the activities of the Department of Statistics can be grouped as follow :—

	LS.
(a) Census of Agriculture	394,000
(b) Household Surveys	105,000
(c) Census of Mining, Manufacturing and Construction..	20,000
(d) Estimate of National Income	55,000
TOTAL	574,000

The object of the *census of agriculture* is to collect basic information for the needs of development planning in order to assess the potential for further agricultural developments. There will be a complete enumeration in the relatively densely populated areas and a sample census for the rest of the country. The results will present a broad picture of the agricultural sector of the Sudan and also provide a framework on which future investigations and closer regional studies can be used. This will materially assist in planning of general agricultural development and of regional potentialities.

Household Surveys are designed to provide information about a number of important aspects of the socio-economic life of the people. This information is an essential supplement to the basic data obtained from the censuses of population, agriculture and industry, if development planning is to be comprehensive, precise and effective.

The Census of Mining Manufacturing and Construction aims at filling obvious gaps in economic information and to providing a broad base for more frequent detailed and specialised enquiries in the future.

The development of *national income statistics* and of national accounts has of necessity been of a limited nature. Valuable data will become available as a result of the censuses of agriculture and industry. In the private sector, mainly agricultural and industrial operations have not been fully explored because of the lack of basis data which will now become available.

II. BUILDING FOR GENERAL ADMINISTRATION

Many public buildings of all kinds and types can be considered to be directly linked up with or to be part and parcel of the numerous development projects enumerated in these chapters. The capital costs involved are of course included in the investment figures for such projects. It is worth mentioning that it is estimated that the public sector investment total includes a very substantial amount of building.

Here, however, a number of buildings serving more general administrative purpose will be additionally listed which together require LS. 2,254,520 of investment funds.

Ministry of Foreign Affairs		
(a) New H.Q. Buildings	LS.	200,000
(b) Purchase of Embassy Premises Abroad ..	LS.	115,676
Ministry of Interior, Archives Buildings	LS.	60,000

Judiciary, Buildings for Civil and Sharia Courts Including Staff Housing	LS.	331,505
Ministry of Commerce, Industry and Supply		
(a) New H.Q. Office Buildings	LS.	132,939
(b) Regional Offices	LS.	59,400
Ministry of Finance and Economics, Building for Planning Secretariat which will also Accomodate Meteorological Department Head Quarters and Additional Offices for Department of Agriculture	LS.	250,000
Headquarters of the Department of Land Use and Rural Water Development and the Passports and Immigration Section, of the Ministry of Interior Office Buildings for Local Government and Attorney General	LS.	70,000
Office Building for Public Administration Institute ..	LS.	35,000
Rest Houses Outside Khartoum	LS.	100,000
V.I.P. Additional Offices in Ministry of Animal Resources, Headquarters Buildings	LS.	10,000
Department of Forests, New Headquarter Buildings ..	LS.	40,000
Khartoum Municipality Town Hall (Government Contribution)	LS.	250,000
Ministry of Works, Miscellaneous Civil Buildings (The amount is at the Disposal of the Public Works Board to Finance Unforeseen Buildings Submitted by Heads of Departments)	LS.	600,000
	LS.	2,254,520

12. MISCELLANEOUS

The following allocation for various projects or purposes had been made available to the Ministry of Finance and Economics by virtue of its direct and/or co-ordinating function in respect of them :—

(i) Additional Offices for Resident Representative of United Nations Technical Assistance Board ..	LS.	13,000
(ii) Sudan Government Contribution Towards Annual Expenditure of the Office of Resident Representative of United Nations Technical Assistance Board	LS.	70,000
(iii) Sudan Government Liability Towards Local Living Cost of UNTAB Experts	LS.	175,000
(iv) Sudan Government Liability Towards U.S. Aid Projects	LS.	2,000,000
(v) New Funds for Completion of Schemes in Previous Programmes	LS.	228,000
(vi) Central Reserve Fund	LS.	8,000,000
	LS.	10,486,000

Except for item (vi) there is no need to explain the nature of each of the other items. As regards the *Central Reserve Fund,* it had been created to cater for :—

(i) Certain presently unforseeable needs such as research and investigations of a special nature or inter-departmental character, which do not fall within the existing proposals.

(ii) New projects of an urgent character which will arise from changing circumstances or new opportunities during the lifetime of the Plan, and which cannot be financed from off-setting savings or by scaling down or deferment of other approved projects.

(iii) Deficencies in approved estimates; experience had shown that in many cases approved estimates proved insufficient—either because of underestimation, rise in prices or the necessity to include in the project something which had not been foreseen or provided for.

It is felt that the magnitude of this reserve may be small in relation to the size of the investments of the public sector. However as the Ten Year Plan coverage is very comprehensive and as the estimates of costs of many of the various projects have been carefully worked out it is conceivable that no abnormal calls will be made on the Central Reserve Fund.

CHAPTER VII.

THE ORGANIZATION FOR DEVELOPMENT PLANNING

Historical Background

Prior to the Second World War there was, no conscious awareness of the need for development planning in official circles and accordingly there was no distinct organization entirely concerned with the formulation of development projects. However, the initiative of some individual departments resulted in the inclusion of a few projects of a capital nature in the ordinary annual budget.

Towards the end of the war there was some discussion of the administration of post-war reconstruction, mainly from the angle of making up for the deferments necessitated by the war. In 1946 a Development Priorities Committee, composed of the Financial Secretary, the Civil Secretary, the Director of the Department of Economics and Trade, and the General Manager of Sudan Railways was set up. The task of this Committee was to confirm the soundness of projects for post war reconstruction and development and to advise upon priorities for their execution. It was this Committee that settled the main outlines of the Sudan First Five Years Development Programme (1946-51).

Early in 1949 and as a concomitant of the constitutional advance of the country the Capital Expenditure Standing Committee superseded the Development Priorities Committee. The new Committee was a sub-committee of the Executive Council, the majority of whose members were the British heads of departments. It consisted of the Financial Secretary (Chairman), the Civil Secretary, the Minister of Agriculture, and the Director of the Department of Economics and Trade (as invited member). Its terms of reference were :

> "To consider all proposals for capital expenditure other than those of the Sudan Railways, Local Government and Commercial Boards and to recommend which of such proposals should be included in the Capital Expenditure Programme."

In January 1951, when it was time to embark on Sudan's Second Five Year Development Programme, the Executive Council appointed a Development Committee from its own members, consisting of :—

The Financial Secretary (Chairman)

The Civil Secretary.

The Minister of Agriculture.

The Under Secretary for Economics and Trade.

One Member without portfolio.

The terms of reference of the Committee were :—

Long-Term (General Development Planning) :

(i) To survey the natural resources of the Sudan (including man-power) and to prepare a general long-term plan for conservation and co-ordinated development of these resources (including the provision of adequate communications), in order to bring about the maximum practical improvement in the standard of living of the inhabitants of the country and to submit this general plan to the Executive Council.

Short-Term (1951/56 *Development Programme*) :

(ii) To scrutinize development projects submitted by Government Units (Ministries, Departments and Provinces including Local Government) ; to select for execution those which seem most desirable with regard to the funds and physical resources available ; and to instruct the Units concerned to include these in their development budget proposals, for approval by the Executive Council and the Legislative Assembly.

(iii) To allocate funds allotted to the Committee for the purpose of execution of minor supplementary development schemes not included by Units in their budget or for surveys or investigations required by the Committee.

(iv) To require the submission of periodical reports on the execution of approved development schemes ; and to report progress from time to time to the Executive Council.

The Development Committee superseded the Capital Expenditure Standing Committee, which was wound up.

Upon the attainment of self-government in 1954 and of Independence soon after, the Development Committee became a sub-committee of the Cabinet but without alterations in its terms of reference. However, its membership was naturally changed and became composed of the Minister of Finance and Economics (Chairman), the Minister of Agriculture, Irrigation and Hydro-Electric Power, the Minister of Health, the Minister of Works, the Minister of Education, the Minister of Commerce, Industry and Supply, the Minister of Communications, and quite recently the Minister of the Interior was added to the membership.

It is worth mentioning that prior to 1951 there was no distinctive civil service office exclusively dealing with development planning, all work in this connection was carried out in the Expenditure Section (responsible for preparing the annual ordinary budget) of the Finance Department as part of its routine duties, and development expenditures were a part of the ordinary Budget. A specific organization for development-planning was instituted in 1951 with the establishment of the Development Branch within the Finance Department The first separate Development Budget was made in 1951/52 and since then expenditures on development have been carried in a special budget.

The Development Branch considers projects for inclusion in the Programme whether annual or longer-term, which are submitted by the various Governmental Units. After examination of the projects and discussions with the Ministries and Departments concerned, they are submitted to the Development Committee and after discussion with the heads of the Ministries and Departments concerned are approved or rejected, or sent back to the Branch for further examination, the latter two eventualities are in practice very rare. The projects which are finally approved by the Committee are orporated into a Development Programme and submitted in Budget form the Council of Ministers and to Parliament or since 17th November, 1958, the Council of Ministers whose Chairman is the President of the Supreme uncil for the Armed Forces and in this capacity is vested with all legislative, executive and judicial powers.

THE PROPOSED REORGANIZATION FOR DEVELOPMENT PLANNING

Since 1946 developmental efforts have been continuous and have been king an increasing share of total Government outlays. Two Five Year evelopment Programmes, the 1946/51 and the 1951/56 Programmes, have en completed. In addition to these completed Programmes there are ree developmental efforts in parallel progress. They are the New Schemes ogramme, 1957/61, on an annual basis, and the two special Programmes the Managil Irrigation Project and the Sennar Dam Hydro-Electric Power oject. Although the aforesaid Programmes have strengthened the infra- ructure of the Sudan economy, expanded and improved the social services d increased the national income of the country through the execution of me productive projects; and although in general all the programmes were rried out with a high degree of efficiency, yet it has long been felt that the esent machinery, organization and procedures for the planning of develop- ent projects need to be reconsidered. There are various reasons for this, e main ones are briefly outlined hereunder :—

(i) The completed development programmes were to some extent hastily assembled proposals. There had been little proper planning in shaping these programmes. There was no very serious attempt at drawing a balanced programme of development, with the claims of social services and amenities set against the need for projects to assure greater productivity.

(ii) The part of private enterprise in the development of the country has been comparatively small, but since the end of the Second World War, there has been a most welcome increase in activity, particularly in pump and rainland agricultural schemes, in small and medium industries and in building construction. The private effort has been left largely unco-ordinated and uncontrolled; in other words, no attempt has been made to plan for the economy as a whole. Private enterprise has been permitted a free hand as if government and private investment were unrelated financially, physically and in purpose. With the decision to embark on a more ambitious and more bold development of its vast potentialities (in the form of the Ten Year Development Plan, 1961/71), the inescapable conclusion that has emerged from past experience is that the new plan must be a comprehensive one covering both the private and public sectors.

(iii) Economic development and particularly bold and large-scale comprehensive development touches the lives of individuals and the community at many points and calls for certain adjustments and sacrifices. Such sacrifices and adjustments will be more easily forthcoming if the public is taken into confidence at the stage of preparation of the Plan and informed and associated with the important decisions implied in the Plan. A two-way traffic of ideas between the members of the planning organization and members of the public must always be maintained.

(iv) The formulation of a comprehensive plan and all its implications call for the mobilization of the best brain power in the country and the utilization of all the relevant experience in the field of public, semi-public or private development.

Against the above general considerations, it was decided by the Cabinet that the reorganization of the structure of the planning machinery, the composition of its various components and their functions should be as set out in the following notes :—

(*a*) *The Economic Council*

The terms of reference of the Economic Council are the formulation of the economic policy of the Government, the endorsement of the development plan and its annual budgets before its submission to the Council of Ministers. The Chairman of the Economic Council is the President of the Supreme Council for the Armed Forces and the Prime Minister and the members are the Minister of Information and Labour, the Minister of Cabinet Affairs, the Minister of Commerce, Industry and Supply, the Minister of Foreign Affairs and the Minister of Finance and Economics.

(*b*) *The Development Committee*

This Ministerial Committee consists of the Minister of Finance and Economics as Chairman and the Ministers of Works and Mineral Resources, Communications, Interior and Local Government, Education, Health, Animal Resources and Agriculture, Irrigation and Hydro-Electric Power as members.

Its terms of reference are as follows :—

(i) To submit recommendations to the Economic Council on the Development Plan after considering the recommendations of the National Technical Planning Committee.

(ii) To consider the annual development budget and any other supplementary funds which may be recommended by the Minister of Finance and Economics before their submission to the Economic Council for endorsement.

(iii) To consider the reports submitted by the National Technical Planning Committee annually or for lesser periods as it may be necessary, on the execution of the Development Plan and the progress attained by the executing bodies and the difficulties facing them.

(*c*) *The National Technical Planning Committee* (*NTPC*)

The terms of reference of this Committee are :—

(a) To assess the country's material, financial and human resources and to investigate the possibilities of augmenting such resources to meet the requirements of the Development Plan.

(b) To prepare a draft Development Plan for the effective balanced utilization of the resources either those available in the country or those to be obtained from abroad.

(c) To consider and to indicate all factors and circumstances necessary for the successful implementation of the Plan.

(d) To consider and to make recommendations as regards the priorities to be allotted to each project in the Plan.

(e) To make recommendations on the stages in which the Plan is to be carried out especially those to be included in any annual budget.

(f) To watch the progress of the Plan and to make recommendation for any adjustments to be made to suit any changing circumstances.

(g) In all discussions and recommendations the Committee should take into account the basic policy which the Government is adopting and the economic and social system which the Government is aiming to establish and to take into consideration any directions made by the Ministerial Development Committee.

(h) The Committee has the right to appoint any functional sub-committee and decide its chairmanship and membership provided that any such sub-committee should be under the chairmanship of the department most concerned with its functions. The head of the Economic Planning Secretariat and representative of the Ministry of Finance and Economics should be members of all such committee.

(i) Provincial Councils will be responsible for the co-ordination of planning at the village, district and provincial levels. The Committee would therefore discuss with the Provincial Councils the Development Plan wholly or partially in so far as it affects the particular province. The Committee would also discuss with the provincial Councils general problems such as location of development schemes in all regions of the country, grouping of services and standards of social services.

The membership of the NTPC is as follows :—

(1)	Governor, Bank of Sudan	Chairman
(2)	Under Secretary, Ministry of Commerce, Industry and Supply	Member
(3)	General Manager, Sudan Railways	,,
(4)	Director, the Department of Agriculture	,,
(5)	Under Secretary, Ministry of Irrigation and H.E.P.	,,
(6)	Under Secretary, Ministry of Education	,,
(7)	Under Secretrry, Ministry of Health	,,
(8)	Director, Ministry of Works	,,
(9)	Under Secretary, Ministry of Interior	,,
(10)	Under Secretary, Ministry of Local Government	,,
(11)	Director, Ministry of Animal Resources	,,
(12)	Commissioner of Labour	,,
(13)	Vice-Chanceller of University of Khartoum	,,

(14)	Managing Director of the Agricultural Bank of Sudan ..	Member
(15)	Managing Director of the Industrial Bank of Sudan ..	,,
(16)	Managing Director, Sudan Gezira Board	,,
(17)	Under Secretary for Economic Planning and Development Ministry of Finance and Economics	,,
(18)	Five qualified citizens to be appointed by the Council of Ministers.	,,

(*d*) *The Economic Planning Secretariat* (*EPS*) :

The EPS had been created under the Minister of Finance and Economics to undertake the functions to be assigned to it by the Economic Council, the Ministerial Development Committee, or the National Technical Planning Committee and to assist the Ministries, Departments and Statutory Corporations in the preparation of their projects and in the execution of the Plan. In connection with the Ten Year Plan of economic and social development, the EPS on the basis of broad policy directives called on all Governmental Units to submit their proposals for development, made the necessary discussions thereon and after analysis and summarization in a uniform format submitted the whole matter together with the necessary macro economic studies to the NTPC for consideration and recommendations. It performed the secretarial work for the NTPC and prepared its minutes and final report. It also did the secretarial work for the Development Committee and prepared the various memoranda and the Development Budget for submission to the Economic Council and the Council of Ministers. When the Plan was approved by the Council of Ministers, the EPS informed each Ministry and Department or Statutory Corporation of the projects which had been approved for inclusion in the Ten Year Plan, the monetary allocation for each and the appropriations for the 1961/63 financial years. It is also handling the day-to-day financial problems, clarification and direction. The EPS is not yet fully built up as a separate entity, its functions are being discharged by a section of its own staff and the relevant sections of the Ministry of Finance and Economics. The organizational set up of the EPS which has already been pressed and which will be fully established and adequately staffed in the course of this year is as shown in the attached organizational chart.

ORGANIZATIONAL CHART OF THE ECONOMIC PLANNING SECRETARIAT

UNDER SECRETARY

DEPUTY UNDER SECRETARY

Assistant Under Secretary
Chief Economist
Senior Statistician
Senior Agricultural Economist

Assistant Under Secretary
1 Planning Advisor (Agricultural)
1 Planning Advisor (Transport and Communication)
1 Planning Adviser (Industrial Development)

ECONOMIC STAFF BRANCH

PLANNING AND PROGRESS BRANCH

13	12	11	Office	10	9	8	7	6	5	4	3	2	1
Economic and Financial Resources and Research Section	Statistics and Survey Section	Projects Appraisal Section	Manager and Establishment Officer	Social Services and Welfare Section	General Services Section	Budget Preparation and Liaison Section	Regional Development Section	Agricultural Section	Irrigation and Hydro-Electric Power Section	Transport and Communication Section	Industrial Development and Mineral Resources	External Aid Section	Information Publicity and Publication Section
Analysis of Structure of Economy Formulation of Objectives and Targets and Levels of Plans, Projection of Exports Imports, Balance of Payment Sectoral Distribution of Investments Regional Economic Studies	National Income Studies Man Power Studies Censuses General Statistics	Analysis of all Projects from an Economic point of view; to assess Priorities in light of Contribution to National Income Assess Administrative and Organization Feasibility Assist Departments in Preparation of Projects	Registry Despatch Typing Pool Personnel Affairs etc.	Education University of Khartoum Religious Affairs Department Health Ministry of Information and Labour	Interior. Police Prisons Building Justice Judiciary Government Printing Press Surveys, etc.	Centralization and Preparation of Annual Development Budget. Legislative Matters Liaison with Finance and Economics on Regulations Rules, etc.	Provincial and Local Administration Co-ordination of Local Development Works with National Plan and Liaison.	Agriculture Forests Land Use and Rural Water Ministry of Animal Resources Agricultural Bank All Statutary Boards	Ministry of Irrigation and H.E.P. Central Electricity and Water Administration	Sudan Railways and Steamers Sudan Airways Civil Aviation Roads Mechanical Transport Department Posts and Telegraphs	Commerce, Industry and Supply Industrial Bank Private Sector Geological Survey	U.S. Aid United Nations Technical Assistance Board Other Aids	Popular Information Sheets for Citizens More Profound Publications Films. Care of Visitors

APPENDIX I

EXPANSION INVESTMENTS OF THE PUBLIC SECTOR

1961 62—1970 71

Scheme No.			
	1. MINISTRY OF AGRICULTURE		
	A. *Department of Agriculture*		
1	Expansion in Production of American Cotton	680,000	
2	Expansion in Production of Coffee in Equatoria	600,000	
3	Expansion in Rice Production	430,000	
4	Consolidation of Existing M.C.P.S. ..	970,000	
5	Production of Castor Seed	140,000	
6	Mechanical Cotton Picking Equipment ..	70,000	
7	Investigation for Reorganization of Government Estates	100,000	
8	Kenaf Production Trials	80,000	
9	Pilot Tea Plantation and Factory Trials for Cash Crops	480,000	
10	Additional Buildings for Gezira Research Station and Matug S/Station ..	480,000	
11	Crop Protection Division	520,000	
12	Horticultural Development	590,000	
13	The Clearance Machinery and Team on Tyres	3,400,000	
14	Replacement of Mobile Plant	430,000	
15	Establishment of Seed Propagation Centre	200,000	
16	Soil Surveys Division	220,000	
17	Kordofan Research Station	500,000	
18	Soil Survey in Connection with Use of Roseires Waters	350,000	
19	Warehouses	360,000	
20	Building for Field Division	200,000	
21	Facilities for Seed Heating and Treatment at Ginneries	160,000	
22	Re-organization and Promotion of Yambio Research Station	190,000	11,150,000

Scheme No.			
	B. Forests Dept.		
1	Forest Reservation	350,000	
2	Forestry Plantation	380,000	
3	Khartoum Green Belt	210,000	
4	Wattle Plantation	26,000	
5	Experimental Shelter Belts	25,000	
6	Irrigated Plantation in Blue Nile	250,000	
7	Firewood Plantation White Nile	50,000	
8	Pilot Scheme for Acacia Woodland	13,000	
9	Management and Development of Dom Forests	40,000	
10	Encouragement of Plantations in Agricultural Schemes	30,000	
11	Forest Industries General Investigations and Rubber Research	120,000	
12	Timber Production: –		
	(i) New Equipment	410,000	
	(ii) New Sawmills	90,000	
	(iii) Suki Workshop	10,000	
	(iv) Reservation Plant	7,000	
13	Development of Gum Arabic Industries	55,000	
14	Soil Conservation	120,000	
15	Foresty Research and Education	75,000	
16	Administrative Requirements:		
	(i) New Forestry H.Q.'s	40,000	
	(ii) Mechanical Transport	180,000	2,410,000
	C. Department Land Use and Rural Water Development		
1	Specific Projects	335,000	
2	Haffirs and Dams	1,500,000	
3	Rectification of Haffirs and Dams	507,000	
4	Land Use Projects	200,000	
5	Equipment	100,000	
6	Buildings	200,000	
7	Mechanical Transport	600,000	
8	Drilling	538,000	
9	Erection of Water Yards	1,000,000	
10	Grants to Province Councils for Open Wells	238,000	5,218,000

Scheme No.			
	2. MINISTRY OF ANIMAL RESOURCES		
1	Establishment of 3 Veterinary Hospitals and 3 Mobile Vet.	90,000	
2	Quarantines	60,000	
3	Meat Inspection Service Development	24,000	
4	Hostel for Omdurman Training School	15,000	
5	Development of Range Land, Proper Utilization of Water	100,000	
6	Expansion of Gazala Gawazat Experimental Centre and Darfur Settlement Scheme	263,000	
7	Poultry Development	38,000	
8	Dairies, Creamery at El Obeid, Milk Pasteurization Unit	80,000	
9	Development of Mobile Labs. and Main Labs.	200,000	
10	Development of Fisheries Services Institute	50,000	
11	Expansion of Red Sea Fisheries and Marine Research Institute	103,000	
12	Fisheries Scientific Investigations and Inland Fisheries Research Institute	90,000	
13	Promotion of Game Preservation	70,000	
14	Transfer of Zoo	200,000	
15	Hides, Skins and Leather Development	153,000	
16	Animal Health Institute	69,000	
17	Mixed Farming Pilot Scheme	250,000	
18	Headquarters Buildings	10,000	1,865,000
	3. AGRICULTURAL BANK OF SUDAN		
1	Bank Capital	2,500,000	
2	Bank H.Q. Branches and Warehouses	800,000	
3	Grain Silos	2,310,935	
4	New Cars	58,714	5,669,649
	4. MINISTRY OF IRRIGATION		
1	Remodelling of the Gezira Main Canal Regulators	100,000	
2	Debeiba Extension	150,000	
3	Abu Usher/Ganib Extension	30,000	
4	Jebel Marra Investigation Scheme	812,500	
5	Seasonal H.E. Power Roseires	1,000,000	
6	Investigation of Dinder—Rahad Diversion Scheme	30,000	
7	Managil Extension	14,185,684	
8	Sennar H.E. Power Project	2,779,470	
9	Roseires Dam Project	35,713,392	
10	Khashm El Girba Dam Project	14,497,867	69,298,913

Scheme No.			
	5. POSTS AND TELEGRAPHS DEPT.		
1	Sennar—Kosti Trunk Cable	44,000	
2	Khartoum—Atbara Trunk Cable	135,200	
3	Re-arrangement of Open Wire	23,050	
4	Extension to Main Automatic Exchange	592,500	
5	Telephone Development—Rural Areas ..	70,000	
6	Subscribers Trunk Dialling Service ..	24,000	
7	Provision of Underground Cable for Subscribers—Distribution 3 Towns.. ..	503,700	
8	Provision of Underground Telephone Cable for Provinces	140,600	
9	Dongola Loop Telephone Trunk Line ..	73,400	
10	Extension of Telegraph Services	62,750	
11	Automisation Programme for Larger Towns	112,000	
12	Aeradio Service Teleprinter Link to Cairo—Malta—Khartoum	18,360	
13	Aeradio Ground—Air HF/RT	42,560	
14	Southern Sudan Radio Telephone Links..	40,650	
15	Provision of New One-man P. & T. Offices..	186,060	
16	Port Sudan Coast Station Provision of High Frequency Telecommunication Facilities	16,500	
17	Red Sea Coast Telecommunications ..	187,800	
18	Provision for Private Letter Boxes ..	36,449	
19	Mechanization of Accounts	24,408	
20	Rota Printing Machinery	7,552	
21	Torit New P. & T. Office	8,000	
22	Juba New P. & T. Office	20,400	
23	Geneina Fort New P. & T. Office ..	10,000	
24	Sennar New District Staff Housing ..	15,600	
25	Sennar New P. & T. Office	10,060	
26	Kassala P. & T. Office 1st floor	12,000	
27	P. & T. Staff Training School Building..	39,268	
28	New P. & T. Garage	20,000	
29	Kosti—El Obeid Trunk Cable	122,000	
30	Radio Monitoring Station	25,950	
31	Malakal New P. & T. Office	17,200	
32	Khartoum North New P. & T. Office ..	30,000	
33	New Offices at P. & T. Stores at Remeila ..	20,000	
34	Remeila New Workshop	20,000	2,712,01
	6. METEOROLOGICAL DEPT.		
1	Two Radiosonde Station	48,000	
2	Six 1st Class Met. Stations	81,000	
3	Met. Training	79,000	
4	Six Agro-Met. Stations	75,000	
5	Two Weather Radar	38,000	
6	Buildings	37,000	
7	Equipment	30,000	
8	Rain Gauges	6,000	394,0

Scheme No.			
	7. SUDAN AIRWAYS		
1	Repayment for the 3 Fokkers	999,942	
2	Purchase of Two Twin Engined Jet Aircraft	600,000	
3	Purchase of Two Commets	2,933,850	4,533,792
	8. CIVIL AVIATION		
1	Khartoum New Airport	6,123,000	
2	Asoteriba Airport	1,961,000	
3	Internal Airports:		
	(i) El Obeid Airport	260,000	
	(ii) Juba Airport	180,000	
	(iii) Geneina Airport	240,000	
	(iv) Kassala Airport	300,000	
	(v) Wad Medani Airport	180,000	
	(vi) El Fasher Airport	220,000	
	(vii) Atbara Airport	120,000	
4	Telecommunication Equipment	83,000	9,667,000
	9. SUDAN RAILWAYS		
	Sudan Railways Expansion to be Financed from S.R. Own Resources	34,984,000	34,984,000
	10. MECHANICAL TRANSPORT		
1	Main Base W/Shops: Expansion and Development	39,000	
2	Establishment of Two Advanced W/Shops at Juba and El Obeid	110,000	
3	Resiting, Rebuilding and Expansion of Outstations W/Shops	260,000	
4	Mobile W/Shops	68,000	
5	Development of Stores Services	120,000	
6	Expension of Fuel Supplies	12,000	
7	Training Facilities	40,000	
8	Expansion of M.T.D. Khartoum Pool	100,000	
9	Expansion of H.Q. Staff and H.Q. Building	80,000	
10	Expansion of Dept. Fleet of Vehicles	50,000	
11	Houses in Outstations	100,000	979,000

Scheme No.			
	11. MINISTRY OF EDUCATION		
	Old Schemes		
1	Missionary Schools Taken Over by the Ministry	451,792	
2	Consolidation of Existing Schools by P.W.D.	311,158	
3	Consolidation of Existing Schools by Provinces	300,000	
4	Elementary Schools	292,374	
5	Intermediate Schools	307,469	
6	Science Laboratories	20,610	
7	Post Intermediate	9,519	
8	Temporary Accommodation	15,000	
9	Cultural Unit	600,000	
10	Various Minor Projects	30,000	
11	Hostels for K.T.I. Students	75,015	
12	Secondary Education	1,093,397	
13	Teachers' Training Centre	82,669	
14	Secondary Schools Teachers' Training Institute	803,264	
15	Rebuilding of Delapidated Schools	269,452	
	Antiquities		
16	Salvage of Nubian Remains	277,116	
17	National Museum	111,500	
	SUB-TOTAL	5,050,335	
	New Schemes		
18	General Secondary Education	5,000,000	
19	Senior Secondary Education	5,250,000	
20	Technical Education	4,130,000	
21	Teachers' Training	950,000	
22	Mechanical Transport	207,000	
23	Antiquities	96,000	
24	Publications	562,000	
25	Administration Including Community Dev.	50,775	
26	Primary Education in Province Administration	11,600,000	32,896,110

Scheme No.			
	12. UNIVERSITY OF KHARTOUM		
1	Administration	1,160,000	
2	Faculty of Agriculture	75,000	
3	University Farm	31,765	
4	Faculty of Arts	60,000	
5	Faculty of Engineering	407,000	
6	Faculty of Medicine	125,000	
7	Faculty of Science	269,500	
8	Faculty of Vet. Science	127,000	
9	Library	25,500	
10	Miscellaneous Projects	700,000	2,980,765
	13. MINISTRY OF HEALTH		
1	Hospitals and Extensions to Hospitals	3,628,950	
2	Laboratories	650,000	
3	Housing and Hostels	1,500,000	
4	Medical Equipment and Fittings	963,625	
5	Mechanical Transport	292,880	
	S/TOTAL	7,035,455	
6	Dispensaries and Extensions to Dispensaries—Province Councils	653,000	
7	Midwives Training Schools—Province Councils	232,500	
8	Health Centres and Public Health Office—Province Councils	516,000	8,436,955
	14. LABOUR DEPARTMENT		
1	H.Q. Buildings	10,000	
2	Regional Labour Offices	120,000	
3	Vocational Training Centre	370,000	500,000
	15. INFORMATION DEPARTMENT		
1	Broadcasting	40,260	
2	Information Services	46,120	
3	Sudan Film Unit	128,374	
4	Mobile Cinema	80,400	
5	Photographic Section	6,000	
6	Tourists Section	80,000	
7	Promotion of Sports	250,000	
	S/TOTAL	631,154	
8	Mobile National Playing Grounds and Demonstration Children's Playing Grounds—Province Councils	80,000	711,154

Scheme No.			
	16. RELIGIOUS AFFAIRS		
1	Religious Maahads in the South	465,000	
2	Religious Guidance Gentres	44,000	
3	Completion and Improvement of Existing Maahads	154,482	
4	Furniture	54,400	
5	Mechanical Transport	53,026	770,908
	17. STATISTICS DEPT.		
1	Census of Agriculture	394,000	
2	Household Surveys	105,000	
3	Census of Mining, Manufacturing and Construction	20,000	
4	Estimates of National Income	55,000	574,000
	18. MINISTRY OF INTERIOR		
	(a) Headquarters		
1	Staff Housing 3 Towns	1,000,000	
2	Archives Buildings	60,000	1,600,000
	(b) Police		
1	Police Housing	1,249,000	
2	Police Stations	280,000	
3	Police Posts	240,000	
4	Training Centres and Stables	120,000	
5	Clubs and Recreation Centres	15,000	
6	Technical Equipment and Mechanical Transport	346,000	2,250,000
	(c) Prisons		
1	Prisons Buildings	1,000,000	
2	Prisons Productive Schemes	100,000	
3	Prisons Mechanical Transport	140,000	
4	Prisons Education	10,000	1,250,000
	19. HALFA PEOPLE'S RESETTLEMENT COMMITTEE		
1	Halfa People's Resettlement	20,000,000	20,000,000

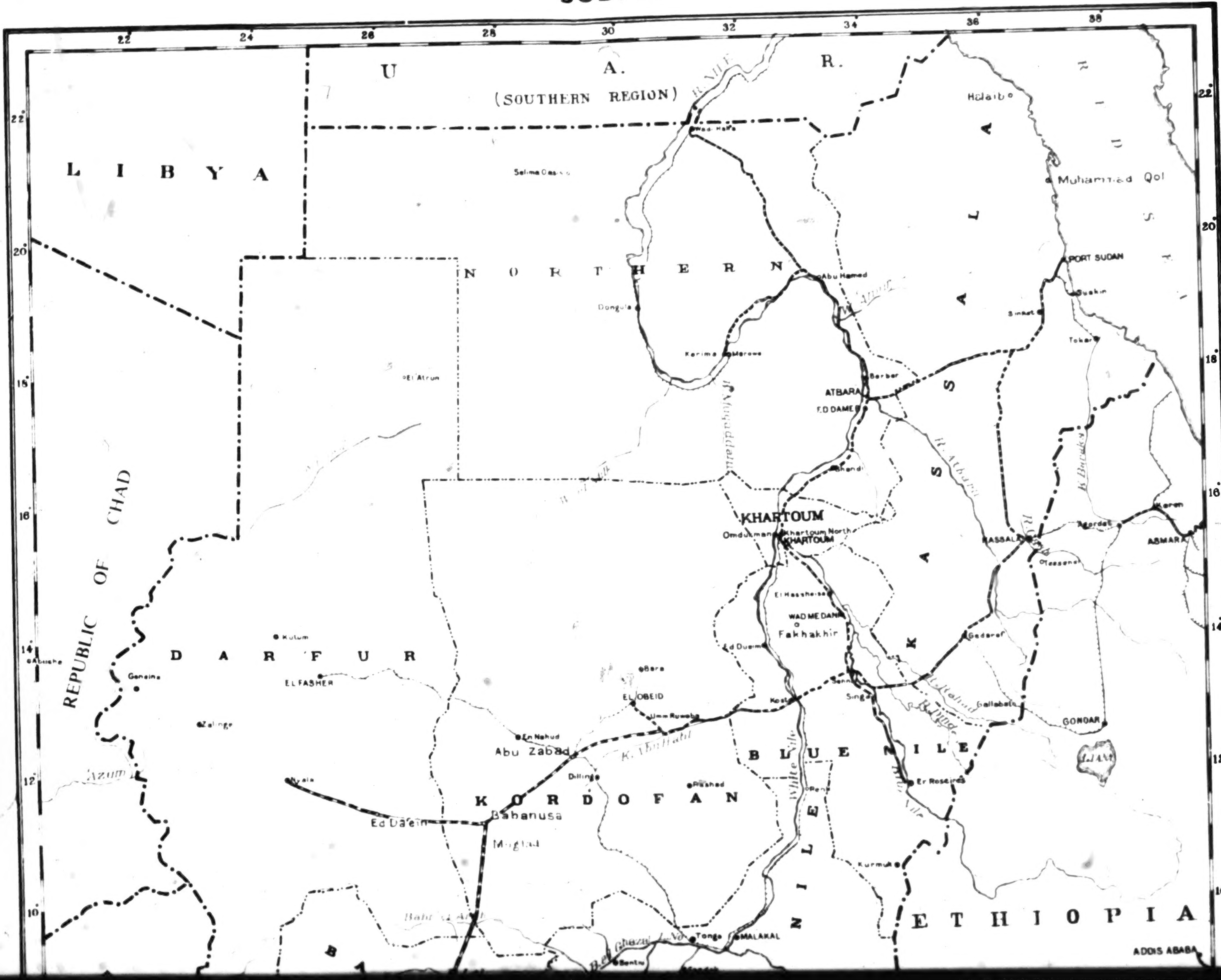
Scheme No.			
	20. JUDICIARY		
1	Building Civil and Sharia Courts and Offices	238,790	
2	Houses for Resident Magistrates and Sharia Kadis	48,767	
3	Houses for Senior Staff	30,748	
4	Houses for Junior Staff	13,200	331,505
	21. MINISTRY OF LOCAL GOVERNMENT		
1	National Housing	900,000	
2	Loans and Grants	3,500,000	
3	Community Development	100,000	
4	Khartoum Street Lighting	179,000	
5	Buildings for Khartoum M. Council ..	250,000	
6	Ferries	260,000	
7	Road Making Equipment	200,000	
8	Buses for 3 Towns	200,000	
5	Shambat Bridge	2,500,000	
10	Widening of White Nile Bridge	600,000	
11	Khartoum North Sewage	400,000	
	S/TOTAL ..	9,089,000	
12	Public Utilities Loan Fund for Province Councils	1,600,000	10,689,000

Scheme No.			
	22. MINISTRY OF WORKS		
	(a) General		
1	Miscellaneous Civil Buildings	600,000	
2	Construction of Offices		
	(i) Khartoum Division New Offices	70,000	
	(ii) Khartoum H.Q. Extension of Offices	60,000	
	(iii) New and Additional Offices	120,000	
3	Mechanical Transport	36,400	
4	Improvement of Production Facilities in the General W/Shop	50,000	
5	V.I.P. Rest House	100,000	
	S/TOTAL	1,036,400	
	(b) Roads		
6	Bridge Over the Jur River at Wau	150,000	
7	Widening and Strengthening of Bridges in Bahr El Ghazal and Equatoria	200,000	
8	Construction and Improvement of Dilling—Kadugli Road	500,000	
9	Essential Improvement for Trunk Roads in Southern Provinces	200,000	
10	Survey of New Roads	100,000	
11	Building Research	74,000	
12	Introduction of Modern Machinery for Road Construction	400,000	
13	Khartoum-Wad Medani Road	250,000	
14	Grants to Province Councils for Minor Improvement to Roads	200,000	3,110,400
	23. SURVEYS DEPARTMENT		
1	Triangulation	636,000	
2	Trilateralation and Traverse	279,000	
3	Precise Levelling	175,000	
4	Topographical Surveys	265,000	
5	Drawing and Printing	170,000	
6	Computation and Equipment	110,000	1,635,000
	24. GEOLOGICAL SURVEY		
1	Field and Laboratory Equipment	148,000	
2	Buildings	44,000	
3	Mechanical Transport	200,000	392,000

Scheme No.			
	25. MINISTRY OF FINANCE AND ECONOMICS		
1	New Equipment for the Mint	80,000	
2	Block of Buildings for the Planning Secretariat, Meteorological H.Q. and Additional Offices for Agriculture	250,000	
3	Offices for the U.N.T.A.B. Resident Representative	13,000	
4	Land Capability Survey	600,000	
5	Office Buildings for Local Government and Attorney General ..	70,000	
6	Office Building for Public Adm. Institute	35,000	
7	Sudan Government Liability Towards U.S.A. Aid Projects	2,000,000	
8	Sudan Government Contribution Towards U.N. Resident Representative ..	70,000	
9	Sudan Government Liability towards Local Living Cost of U.N.T.A.B. Experts ..	175,000	
10	New Funds for Completion of Schemes in Previous Programme	228,000	
11	Central Reserve Fund	8,000,000	11,521,000
	26. STORES AND EQUIPMENT DEPARTMENT		
1	Strengthening of the Facilities of the Department	400,000	400,000
	27. CUSTOMS DEPARTMENT		
1	Wad Medani Sugar Stores	18,000	
2	Kassala Sugar Stores	18,000	36,000
	28. CO-OPERATION DEPARTMENT		
1	Buildings	120,000	
2	Mechanical Transport	45,000	
3	Technical Equipment	6,000	171,000
	29. MINISTRY OF FOREIGN AFFAIRS		
1	New H.Q. Buildings	200,000	
2	Purchase of Embassy Premises in Washington and Paris	115,676	315,676

Scheme No.			
	30. MINISTRY OF COMMERCE, INDUSTRY SUPPLY		
1	Industrial Research Institute	267,857	
2	Regional Offices	59,400	
3	Government Tannery	612,160	
4	Cardboard Factory	675,700	
5	Guneid Sugar Factory	7,915,750	
6	Khashm El Girba Sugar Factory ..	10,063,000	
7	Government Cash Participation in the New Hotel	160,000	
8	Projects Under U.S.S.R. Credit Facilities		
	(i) Wau Factory	722,849	
	(ii) Karima Factory	692,875	
	(iii) Kassala Factory	491,997	
	(iv) Babanousa Factory	755,629	
9	New Office Buildings	132,939	22,550,156
	31. INDUSTRIAL BANK		
1	Bank's Capital	2,500,000	2,500,000
	32. CENTRAL ELECTRICITY AND WATER ADMINISTRATION		
1	Capital Expenditure Programme ..	10,507,000	10,507,000
	33. WHITE NILE SCHEMES BOARD		
1	Melut Pump Scheme	530,000	530,000
	GRAND TOTAL ..		285,000,000

SUDAN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Halaib
Selima Oasis
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Muhammad Qol
RED SEA
PORT SUDAN
Suakin
Sinkat
Tokar
NORTHERN
Abu Hamed
Dongola
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El Atrun
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ATBARA
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Shendi
R. Atbara
K. Baraka
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KHARTOUM
Omdurman
Khartoum North
KHARTOUM
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El Hassheisa
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EL FASHER
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R. Rahad
R. Dinder
Gallabat
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L. TANA
En Nahud
Abu Zabad
K. Abu Habl
BLUE NILE
Er Roseires
Azum
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Renk
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Blue Nile
KORDOFAN
Ed Daein
Babanusa
Muglad
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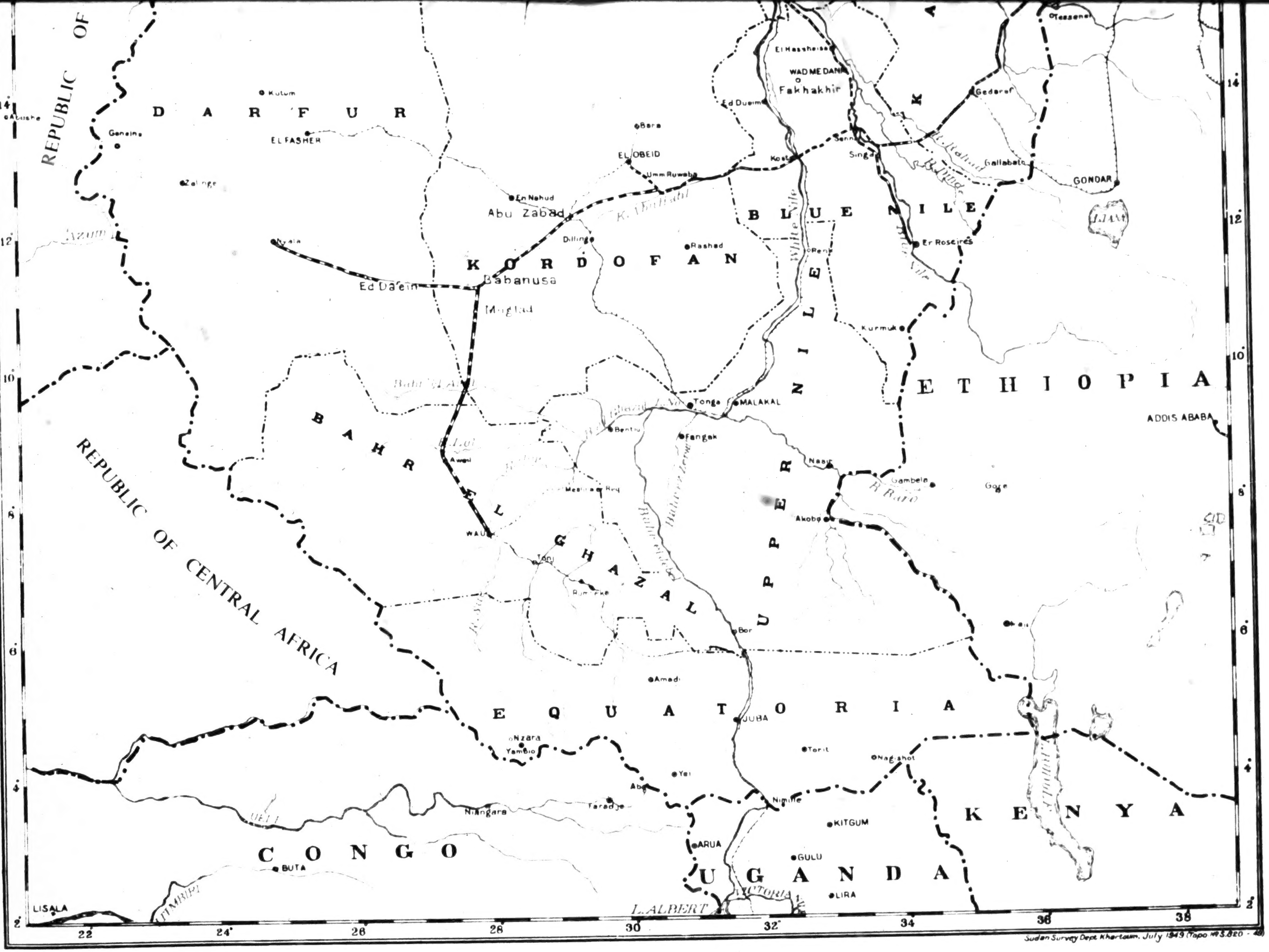
Bentiu
ADDIS ABABA


REPUBLIC OF
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Amadi
REPUBLIC OF CENTRAL AFRICA
EQUATORIA
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Sudan Survey Dept. Khartoum, July 1949 (Topo 1143 S. 820 - 49)

Scale 1 : 8.000.000

Corrected Sep 1961

Miles 100
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200 Miles
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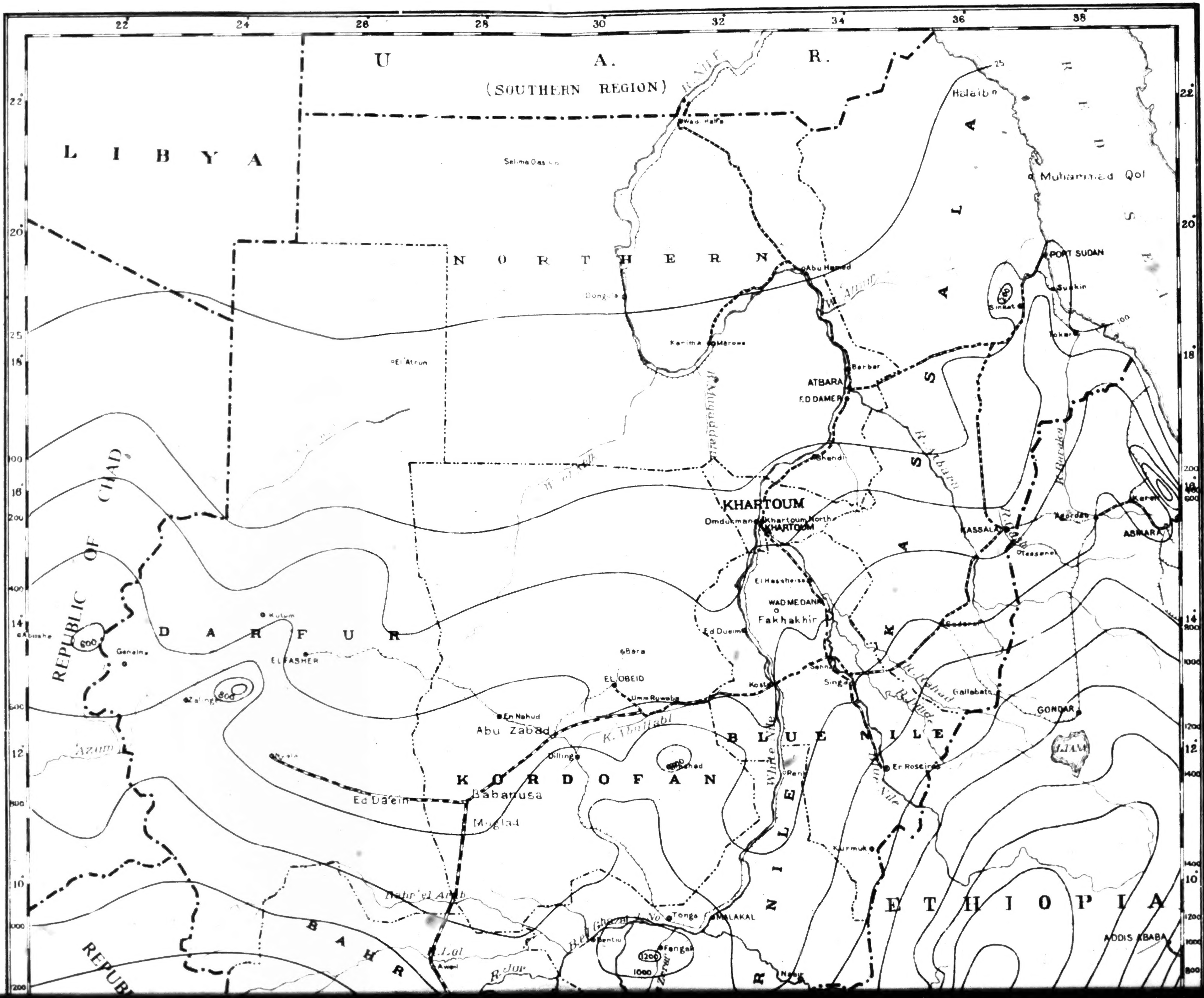
REFERENCE

Boundaries International	—·—·—
Boundaries Provincial	—·—·—
Railways	▬ ▬ ▬
Telegraph Lines	— — —
Roads All Season	
Roads Dry Season	
Aerodromes	

AVERAGE ANNUAL RAINFALL 1921-1950 (MM)

SUDAN



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U. A. R.
(SOUTHERN REGION)
LIBYA
R. NILE
Wadi Halfa
Selima Oasis
Halaib
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Muhammad Qol
RED SEA
NORTHERN
Abu Hamed
Dongola
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Merowe
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R. Baraka
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REPUBLIC OF CHAD
KHARTOUM
Omdurman
Khartoum North
KHARTOUM
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El Hasaheisa
WAD MEDANI
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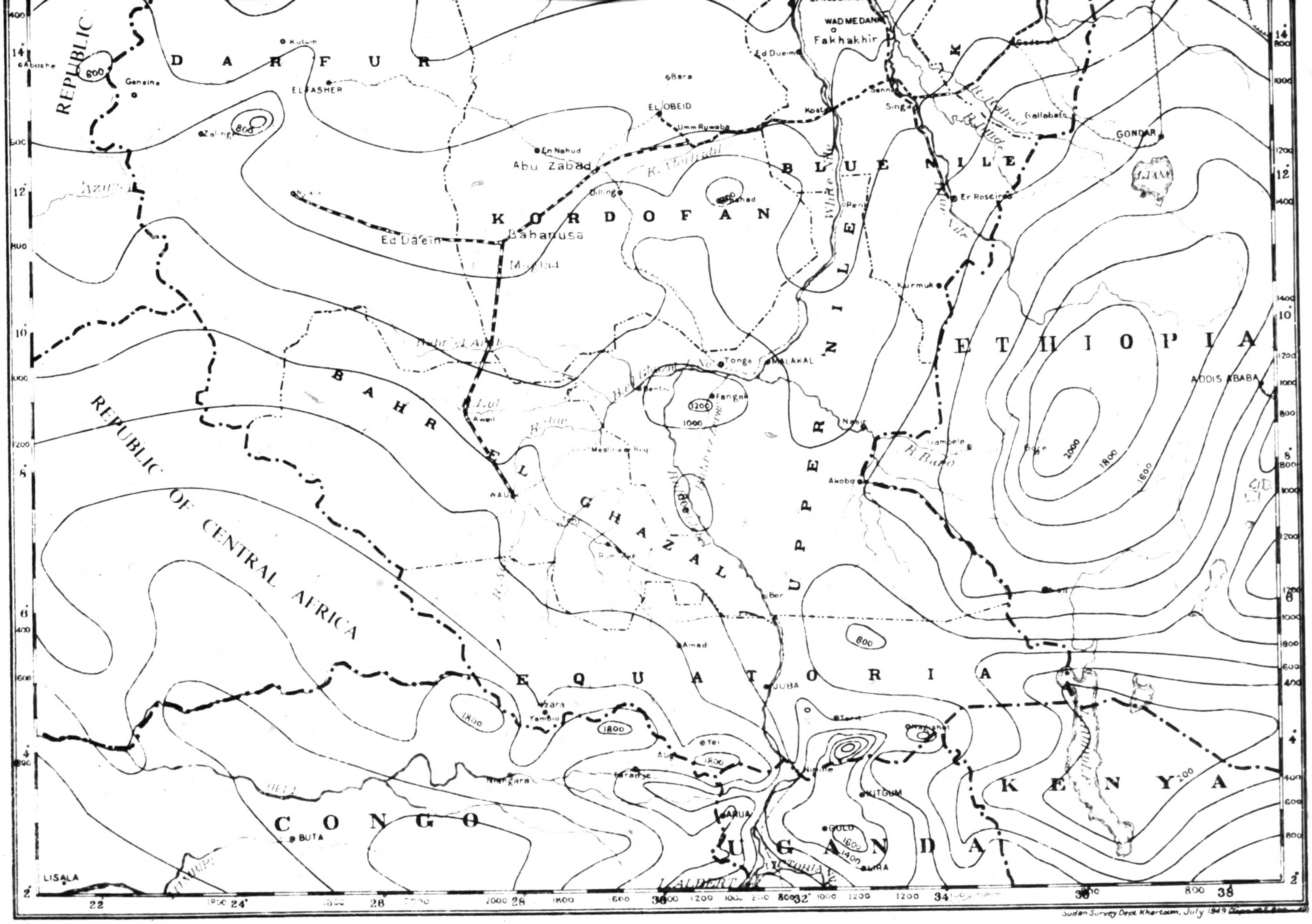
DARFUR
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Sudan Survey Dept. Khartoum, July 1949

PREPARED BY SUDAN METEOROLOGICAL SERVICE

Scale 1:8,000,000

Miles 50 0 100 200 Miles

Km 100 0 100 200 300 400 500 Km

PRINTED BY SUDAN SURVEY DEPT
Corrected Sep. 1951

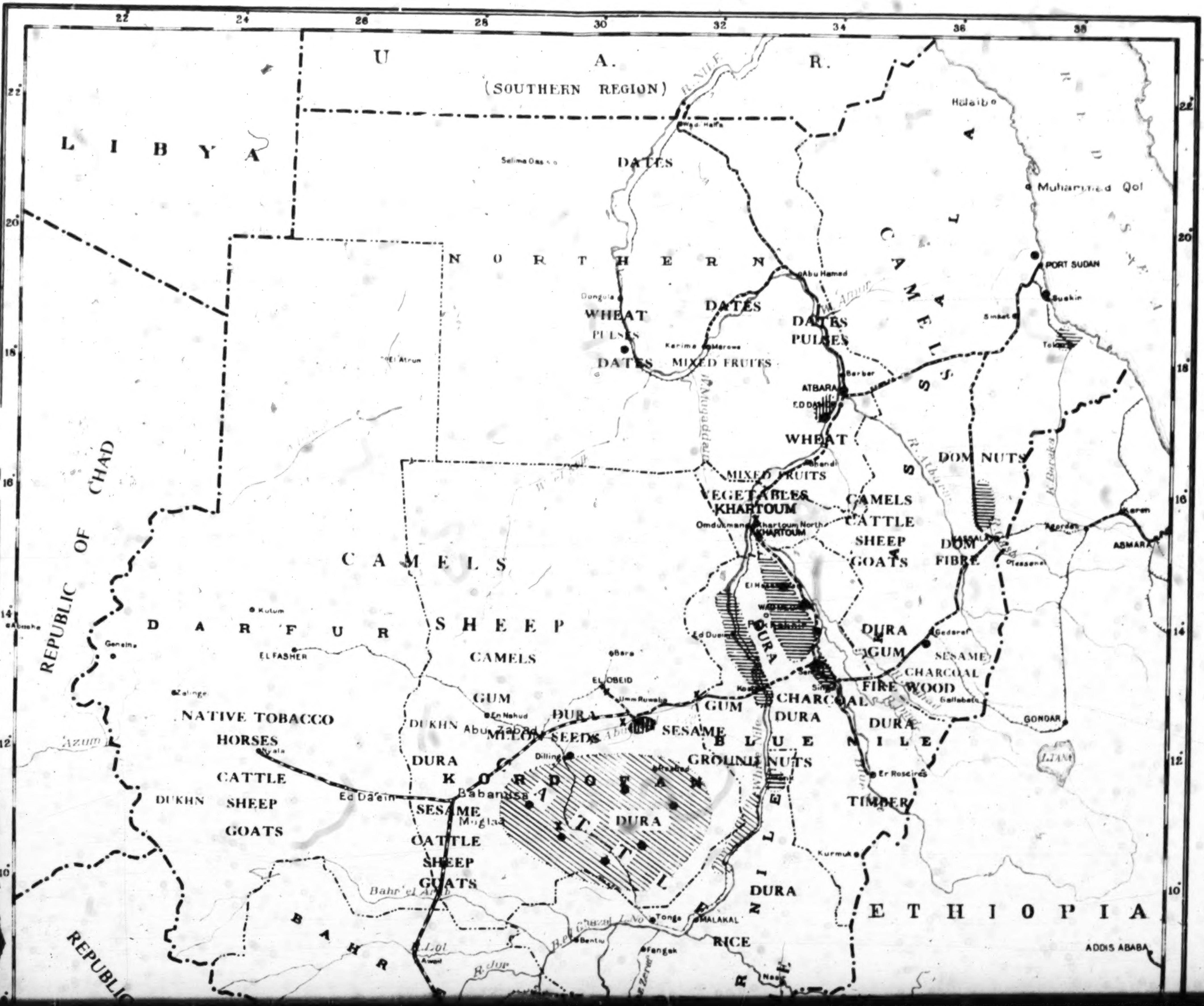
Topo No S 912 54

REFERENCE

Boundaries International
Boundaries Provincial
Railways
Telegraph Lines
Roads All Season
Roads Dry Season
Aerodromes

Average Annual Rainfall (mm) ——800

PRINCIPAL AGRICULTURAL PRODUCTS
OF
SUDAN


U. A. R.
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LIBYA
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DOM NUTS
VEGETABLES
KHARTOUM
CATTLE
SHEEP
GOATS
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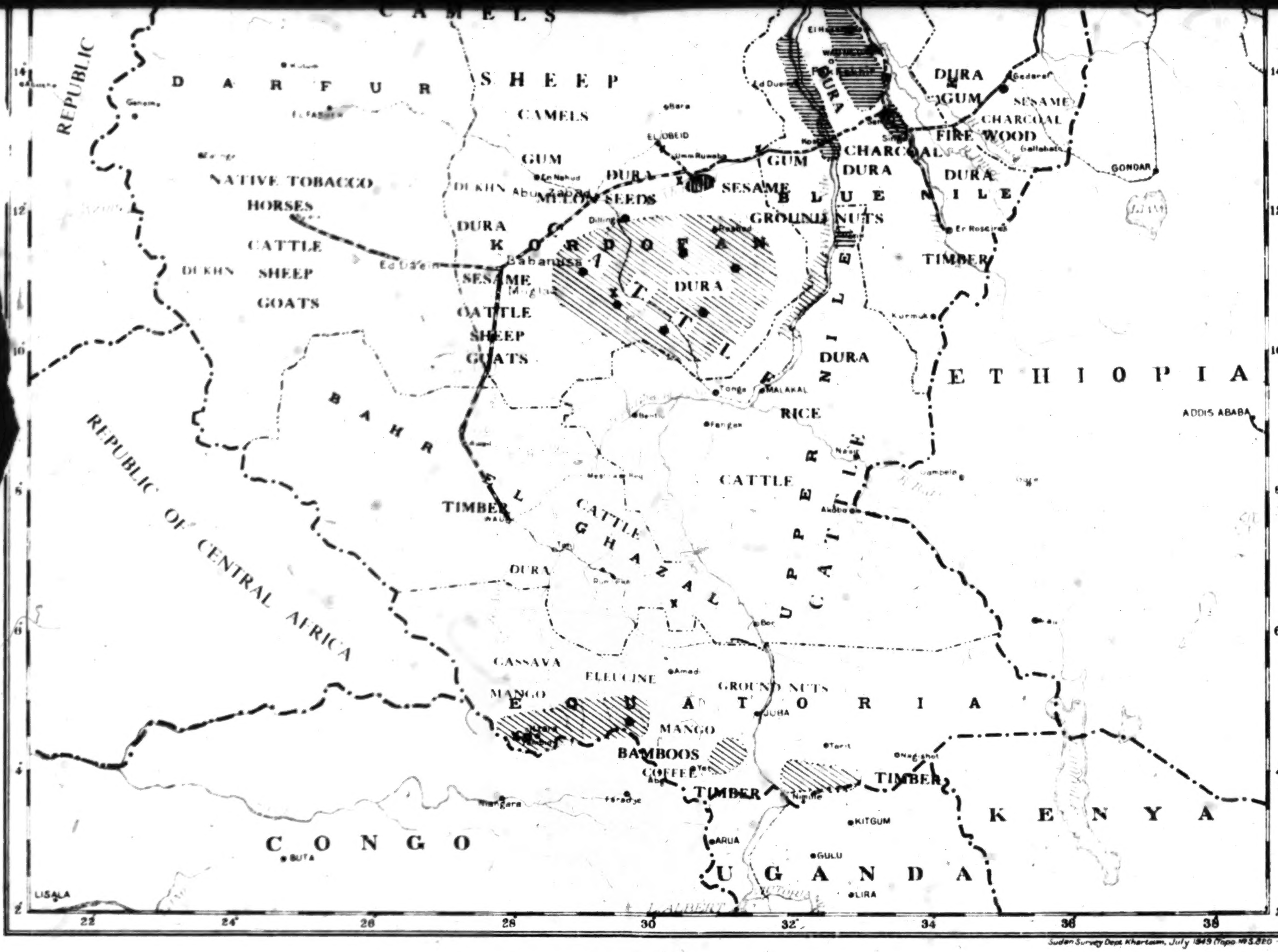
CAMELS
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BAHR EL GHAZAL
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GROUND NUTS
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Sudan Survey Dept. Khartoum, July 1949 (Topo No S.880 - 49)

June 1954 (Topo No. S. 913)
Corrected Sep. 1961

Scale 1: 8,000,000

REFERENCE

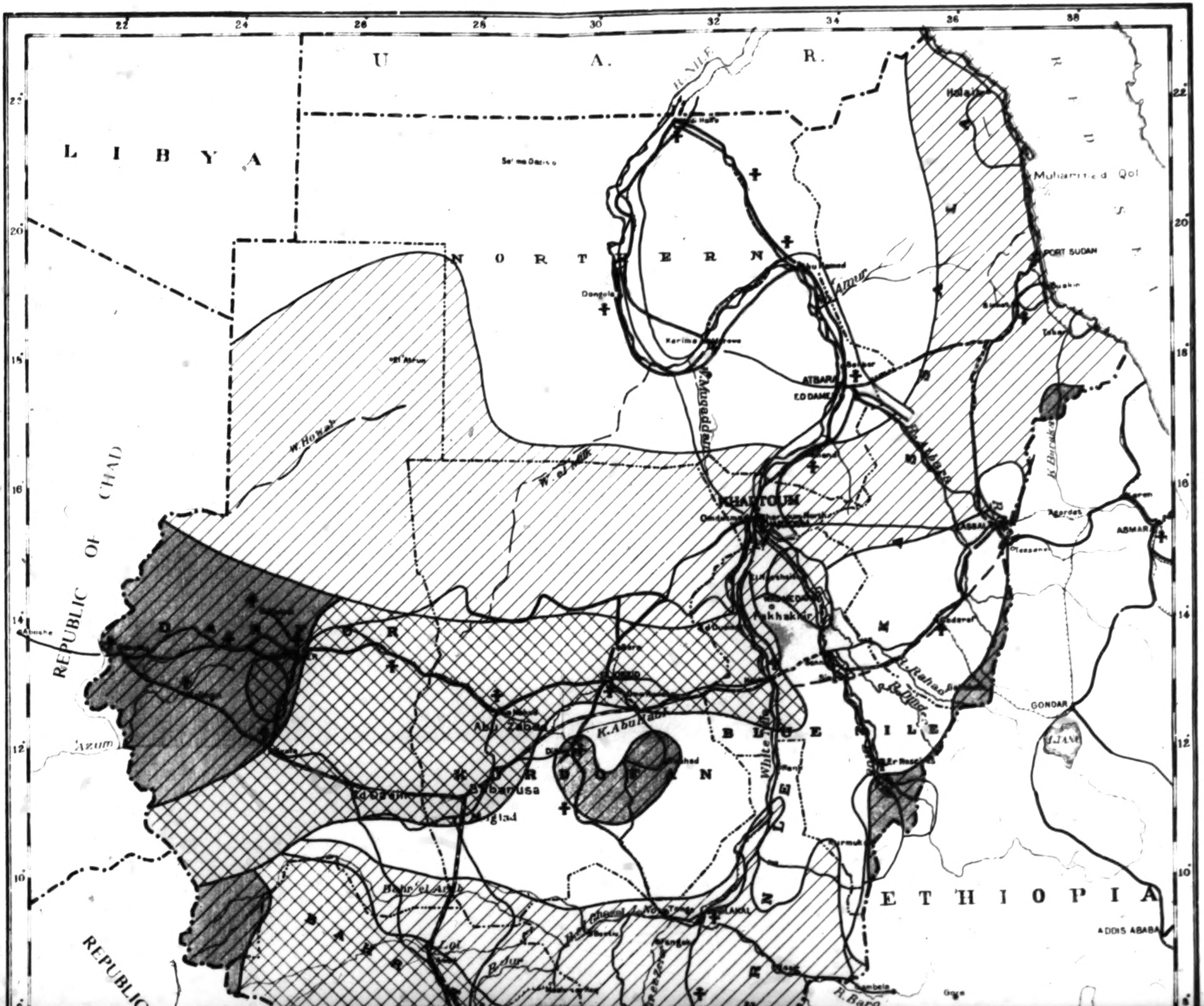
- Boundaries International
- Boundaries Provincial
- Railways
- Telegraph Lines
- Roads All Season
- Roads Dry Season
- Aerodromes

LEGEND

Sakel Cotton ....
American Irrigated Cotton ....
American Rain Cotton ....
Ginning Factories .... ●
Oil mills .... ✕

N.B. Hatched areas are not to scale

MAIN AGRICULTURAL REGIONS
OF
SUDAN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Abu Zabad
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White Nile
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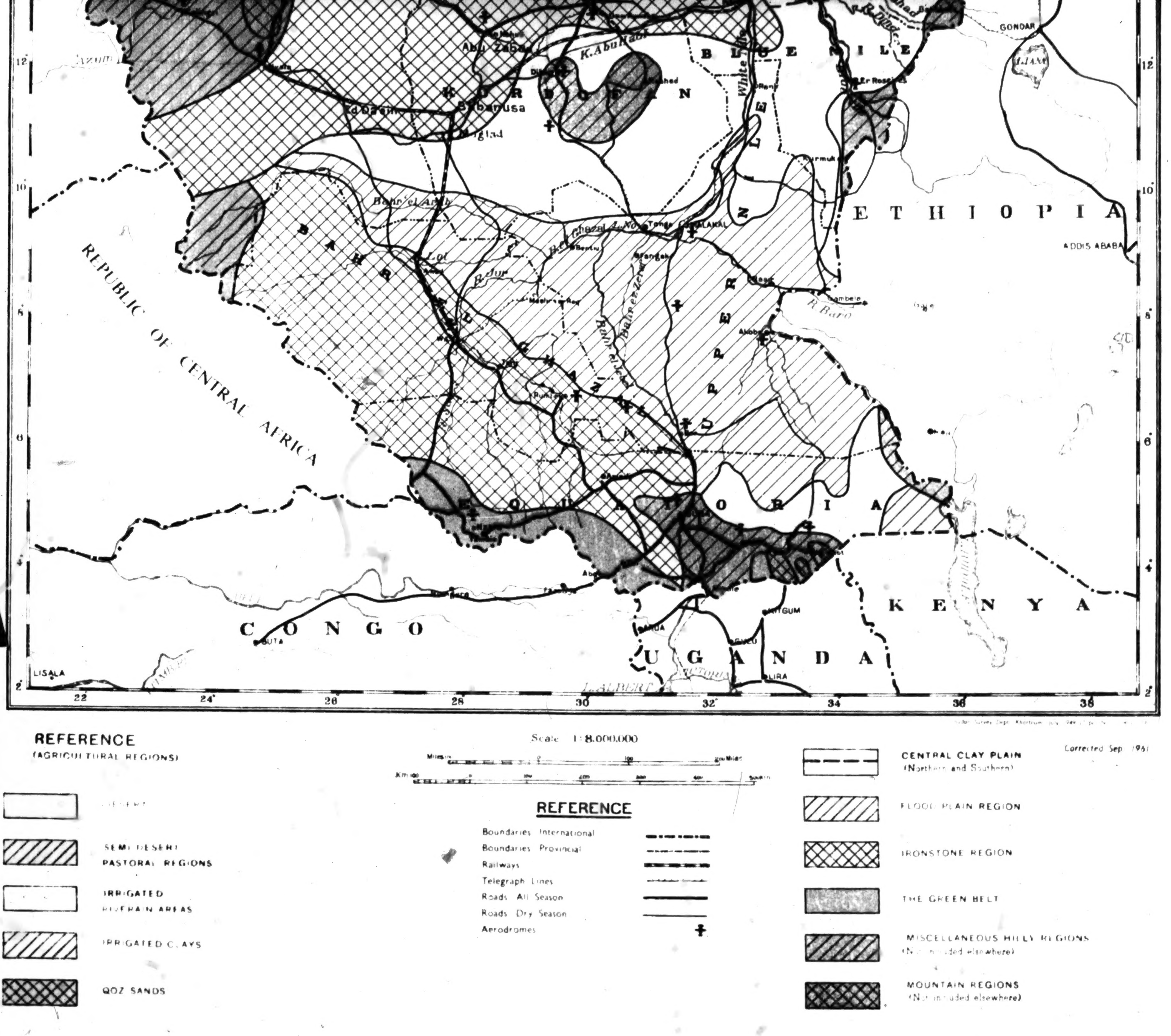

KORDOFAN
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Abu Zabad
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White Nile
K. Abu Habl
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REFERENCE
(AGRICULTURAL REGIONS)
DESERT
SEMI DESERT PASTORAL REGIONS
IRRIGATED RIVERAIN AREAS
IRRIGATED CLAYS
QOZ SANDS
Scale 1:8.000.000
Miles
Km
REFERENCE
Boundaries International
Boundaries Provincial
Railways
Telegraph Lines
Roads All Season
Roads Dry Season
Aerodromes
CENTRAL CLAY PLAIN (Northern and Southern)
FLOOD PLAIN REGION
IRONSTONE REGION
THE GREEN BELT
MISCELLANEOUS HILLY REGIONS (Not included elsewhere)
MOUNTAIN REGIONS (Not included elsewhere)
Corrected Sep 1961